

Croplife

SOUTH MARKETING EDITION

With Added Regional Circulation to the South Marketing Segment

A BUSINESS PAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

Published by The Miller Publishing Co., Minneapolis, Minn.

Vol. 6

Publication at Minneapolis, Minn.
Accepted as Controlled Circulation

DECEMBER 28, 1959

Subscription Rates:
\$5 for 1 year, \$9 for 2 years

No. 52

Significant Results From USDA Study Reported for 1959

Chemical Trade May Benefit from Several Important Findings

WASHINGTON — The past year has been one of progress in agricultural research, the U.S. Department of Agriculture reports. Its scientists in 1959 made a number of discoveries of far-reaching significance to various branches of agriculture, and hence to the chemical trade supplying fertilizers and pesticidal materials to farmers.

Of major importance was the removal from plants and partial purification of a plant pigment which responds to changes in the color and intensity of light and thus controls all plant development. (Croplife, Sept. 14, page 1.) The finding was made by a team of scientists from the Agricultural Research Service and the Agricultural Marketing Service. The ARS workers are on the staffs of two pioneering research laboratories, special units organized two years ago to explore beyond the known limits of scientific knowledge.

The scientists learned that plant growth responses are governed by a reversible chemical reaction that is regulated by the color and intensity of light acting upon two forms of the pigment present in minute amounts. By controlling the light striking the plants—the pigment forms are responsive to red and far-red light—such growth responses as stem elongation, flowering, and color production can be regulated. It is thought that control of all plant development from germination through fruiting can eventually be obtained.

Discovery of a virus disease that affects citrus red mites may open a new avenue to pest control, ARS entomologists reported. It was the first time that a virus had been observed in mites.

Entomologists also learned that (Turn to RESEARCH, page 8)

Mixture of Caution and Optimism Voiced as Trade Looks into 1960

RESTRAINED OPTIMISM for business prospects in 1960 is expressed by leaders in the pesticide and fertilizer trades as 1959 grinds to a halt. A number of factors, chiefly those involved in a declining farm income, are seen as exerting a depressing influence on sales; but on the

credit side are other forces which tend to balance out the picture.

Significant gains were made in a number of directions in 1959, and the momentum thus gained is expected to carry over into the new season.

Here is the way the situation is viewed by Paul T. Truitt, executive

vice president of the National Plant Food Institute who told Croplife:

"More fertilizer was sold in the year 1959 than in any other year in history. However, this large fertilizer consumption occurred principally in the spring planting season. In comparing the 1959 fall movement with the corresponding period of 1958, total fertilizer consumption is down significantly, in many areas as much as 25%. The decline in fall usage may be partially explained by unfavorable weather conditions in October and November, since early fall movement in July, August and September compared favorably with a similar period in 1958."

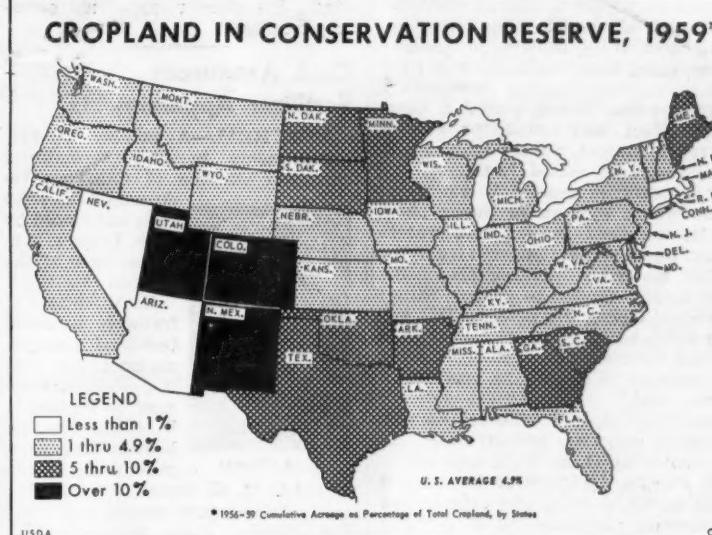
"As we look into the new year, the question is often asked, 'How much fertilizer will be used in 1960?' Of course, predictions are speculative. However, in reviewing the factors which influence fertilizer consumption some deductions can be made. The current decline in farm income will run well into 1960. In addition, higher interest rates on borrowing will further increase the cost of farm supplies needed to make a crop. These two factors alone emphasize the need for more constructive and more intensified selling by the industry if the 1960 spring season is to be as good as 1959."

"Another currently unknown factor which could appreciably affect fertilizer sales in 1960 could be changes made by the Congress in the farm program. The revisions in farm legislation which may be considered by the 2nd session of the 86th Congress have not been announced; however, changes in the present law could have drastic effects either to promote or curtail sales. And, an effective plan for solving the surplus problem undoubtedly would have an effect on the fertilizer market."

"The spring weather which may not accurately be foretold always plays an important part in determining the amount of fertilizer consumed. It will be of particular significance in determining 1960 consumption since fall movement has already been less than last year."

"However, the picture is not altogether dark. On the favorable side, first, such forces as a plentiful supply of fertilizer at reasonable cost should promote usage; secondly, by the spring season more and more farmers throughout the country will have seen the benefits of the Insti-

(Turn to 1960, page 8)



Conservation Program for 1960 Takes Five Million More Acres Out of Production

WASHINGTON—About 28 million acres of the nation's cropland will be held out of production next year under conservation reserve contracts which were in effect or were applied for in 1959, the U.S. Department of Agriculture announced in a year-end report.

Land in the conservation reserve is held out of production to help ease the farm surplus situation and is kept

in conservation uses to meet future needs, USDA said.

During the life of a conservation reserve contract, no crop may be harvested from the reserve acreage. The land may not be used for grazing, and no new land may be placed in cultivation. If there is additional cropland on the farm, which is not in the reserve, total crop acreage must be reduced by the amount of the conservation reserve acreage.

About 22.4 million acres were out of production under this program during the 1959 crop season, and more than 5 million new acres are expected to go into the reserve in 1960 as a result of the signup last fall.

Farms on which all the cropland is out of production account for about 14.8 million acres, or two-thirds of the total amount of cropland under contract in 1959. A special incentive is offered for whole farm contracts since they remove the entire crop production potential of the farm and leave no land for more intensive farming. Also, livestock production generally is reduced or eliminated on such farms.

A farmer who places all his cropland in the conservation reserve may continue to live on the farm, maintain a home garden, and use the per-

(Turn to CONSERVATION, page 8)

Forest Tree Fertilization Lauded at Michigan Meeting

By James C. Totten
Croplife Special Writer

EAST LANSING, MICH.—How about fertilizers for forests?

This was the challenging question tackled by a Michigan State University professor at the annual Michigan fertilizer conference at the M.S.U. Kellogg Center, Dec. 10-11.

In an era when greater yields from fewer acres is a primary objective of agricultural research, explained Dr. Donald P. White, of the M.S.U. department of forestry, it is inevitable that efforts to increase yields of fiber

and other products from forest lands should include the use of fertilizers.

Typical of the planting situations with inherent soil fertility problems or deficiencies, he said, are plantations on coarse soils severely depleted by long-term cropping and afforestation of lands not originally occupied by tree growth.

Other problem situations include reforestation of soils severely depleted by heavy burning, eroded soils and

(Turn to MICHIGAN, page 20)

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Florida Group Discusses Effect Of 20 Years of Fertilization

GAINESVILLE, FLA.—"Nutritional disorders and soil deficiencies which were common in Florida before 1938 have largely become rare," John G. A. Fiskell, associate biochemist at the University of Florida, said during the 19th annual meeting of the Soil and Crop Science Society of Florida.

Speaking at the Gainesville meeting of the 1,200 member society, Mr. Fiskell related some interesting developments which have resulted from the use of sufficient and balanced fertilizer mixtures during a 20 year period.

The theme of this year's meeting was "Twenty Years of Progress in Research, Teaching, and Extension in Soils and Field Crops in Florida."

In keeping with the above theme, Mr. Fiskell summarized his report saying: "The total cash income from crops and livestock in Florida rose from \$114 million in 1938 to approximately \$700 million in 1958.

"Good soil productivity resulting from a great increase in the use of fertilizer and lime has been a most important factor in this increase in income which has closely paralleled the increase in the use of fertilizer," Mr. Fiskell said.

"In 1938 only 315,000 tons of mixed fertilizer were used whereas last year 1,300,000 tons were used. During this 20-year period the use of lime increased from 25,000 tons to nearly 600,000 tons. This increase occurred chiefly after 1949.

"It is interesting to note that the ratio of fertilizer tonnage to lime tonnage has decreased from 20 to 1 in the 1938 period down to a 2 to 1 ratio at present. The fertilizer elements which have accumulated over this period are phosphate, copper, manganese and zinc. It has been determined that organic matter rather than phosphate is responsible for retaining the heavy metals. All other plant food has either been used or leached since accumulations of these are of rather brief duration under Florida's rainfall pattern."

One section of the paper was devoted to the acidity that has been added to Florida soils from fertilization. Mr. Fiskell said, "It is calculated that a maximum of 2 lb. of hydrogen iron are added for every 14 lb. of nitrogen in the ammoniacal form. Two pounds of hydrogen are added for every 142 lb. of P₂O₅ because of reversion to either dicalcium phosphate of iron and aluminum phosphates. A further acidity passed through the subsoil from the leaching of chloride and sulfate.

"This is calculated to be 2 lb. of hydrogen iron for each 94 lb. of potash. The over-all picture is approximately 100,000 tons of hydrogen iron

potentially added. This would be equivalent to 5 million tons of lime. Over this period slightly less lime was added than can be calculated for this potential acidity. The leaching process requires either hydrogen or calcium be removed from the exchange complex as the nutrient element is taken up by the plant."

A detailed description was given of the actual acidity of several fertilizer materials before and after incorporation into the soil. This acidity was found to decrease rather rapidly up to two weeks, except in cases of bands of phosphates where the pH remained much below the pH of the soil. This acidity was attributed to hydrogen iron and soluble aluminum and iron. In this particular test the most acid materials were super phosphate and gypsum.

Another series of studies was reported showing how the pH changes immediately in the zone where the fertilizer is placed.

Mr. Fiskell said "the pH at the fertilization zone is much below the pH of the soil before the fertilizer is applied. As water is passed through the zone, the pH climbs rapidly and in this particular soil study when the pH went above 6.5, clay dispersion was noted as the leaching progressed. This might have implications in hard pan development under soils which are fertilized over a long period of time. This effect was noted for several nitrogen sources, potash sources and nutritionalized mixed fertilizers.

"However, in general, it was found that where gypsum or super phosphate was used, the leaching process took many times longer than for other materials, and the pH of the soil acidity tended to remain rather constant during this process. This latter study indicated that phosphate in mixed fertilizer may stabilize the soil in addition to its role as provider of plant food."

Another paper on the relationship between soil, crop and fertilizer was presented by G. M. Volk, soils chemist, Florida Agricultural Experiment Station, Gainesville. His experiments concerning the recovery of nitrogen by oats and millet indicated a greater efficiency of surface applied ammonium nitrate as compared to urea, ureaform and certain natural organics.

An overall percentage recovery in field tests showed 72.8% recovery from ammonium nitrate and 53.9% from urea, he reported.

Recovery from natural organics ranged upward from about one half that of soluble sources under initial crops to a somewhat higher recovery under repeated cropping.

E. G. Rogers, professor of agron-

omy, University of Florida, reported on weed control, saying, "Considerable research effort is essential in the development of a satisfactory chemical weed control practice. For this practice to be acceptable, a chemical must be selected and applied at a rate or concentration that will kill a large portion of the existing weed population. And if the weeds to be controlled are growing in conjunction with or in close proximity to crops or other domesticated plants, the herbicidal treatment must not damage these plants."

"The development of a practice that will meet these two criteria, therefore, usually requires a long period of testing numerous compounds, each at many concentrations on many weeds and desirable species, since considerable variations exist between any two herbicides in phytotoxic effects on commonly existing weed and crop plant populations."

J. R. Henderson, agronomist with the Florida Agricultural Extension Service, was elected president of the society, succeeding P. H. Senn, head of the department of agronomy, University of Florida.

W. H. Chapman, agronomist at North Florida Experiment Station, Quincy, Fla., was elected vice president.

R. V. Allison, fiber technologist, Everglades Experiment Station, Belle Glade, Fla., was re-appointed secretary-treasurer.

C-I-L Announces Fertilizer Appointments

MONTREAL—A number of new appointments in the agricultural chemicals division of Canadian Industries Ltd., have been announced by V. B. Lillie, general manager of the division.

K. A. Shantz, formerly divisional technical manager, assumes the post of production manager to replace L. V. Clegg who has become the general purchasing agent of C-I-L. H. G. Sewell, formerly Toronto district sales manager, becomes the division sales manager—fertilizers. He is replaced at Toronto by F. P. Smith, formerly assistant Maritimes district sales manager. G. R. Blais, formerly assistant Quebec district sales manager, becomes Chatfield, Ont. district sales manager replacing G. B. Ough who has resigned from the company. Mr. Blais is succeeded by H. W. Barrett, formerly sales representative in eastern Ontario. W. E. Denmark becomes manager of the Hamilton works, replacing H. M. Jones who has taken over Mr. Denmark's previous post as manager of C-I-L's West Toronto paint plant.

Panel Discussion To Highlight Meeting

LINCOLN, NEB.—A panel discussion on "Food and Drug Tolerances and the Use of Agricultural Chemicals" will highlight the 10th annual Fertilizer Dealers Training Conference here Jan. 12-13.

Panelists will include Samuel Fine, Federal Food and Drug Administration, Kansas City, Mo.; Dr. John Weihing, extension plant pathologist; Robert Simpson, extension entomologist; John Furrer, extension agronomist, and Dr. E. Crosby Howe, extension animal hygienist at the college of agriculture. Dr. E. F. Frolik, associate director of the agricultural experiment station.

Other topics for discussion at the conference will include the nitrogen, phosphorus and potash outlook for 1960; fertilizer finance, control of insect pests on corn, Nebraska phosphate needs, use of lime and who uses fertilizer.

M. E. McCollam to Retire from Potash Institute Position



M. E. McCollam



Roger P. Humbert

WASHINGTON—M. E. McCollam will retire Jan. 1 as western director of the American Potash Institute, completing more than three decades of service to western agriculture and the fertilizer industry. He will be succeeded by Dr. Roger P. Humbert, head of the department of agronomy of the Hawaiian Sugar Planters Assn. at Honolulu, according to Dr. H. B. Mann, president of the American Potash Institute.

Mr. McCollam has been the long-time chairman of the Soil Improvement Committee of the California Fertilizer Assn., a member of the Soil Science Society of America, the American Society of Horticultural Science, the Western Society of Soil Science, and the National Joint Committee on Fertilizer Application.

He is one of the few men in the fertilizer industry of America to have a public school named in his honor. His school district last year named its latest public school the Millard E. McCollam school, after their long-time school board member.

At the 36th annual convention of the California Fertilizer Assn., Mr. McCollam was voted an honorary member, along with Dr. Daniel G. Aldrich, Jr., dean of agricultural sciences, University of California.

In announcing Mr. McCollam's retirement, Dr. Mann said: "Few men in American agriculture have bridged the gap between the scientific theories of agricultural research and the everyday applications of the working farmer as skillfully as M. E. McCollam has over the past 30 years. His work on soil testing and later leaf analysis in the West is, indeed, a monument to his long years in our industry. The Potash Institute loses one of its finest scientists and gentlemen in Mac McCollam's retirement. His service to the Institute and to agriculture has been a credit to education, to industry and to himself."

After graduating from the University of California with a B.S. in agronomy, Mr. McCollam worked with the Bureau of Plant Industry, the U.S. Department of Agriculture Bureau of Chemistry, the U.S. Grain Corp. and the State College of Washington Experiment Station before joining the potash industry 31 years ago and the American Potash Institute six years later.

One of his greatest contributions to western agriculture has been his close cooperation with official agricultural scientists in initiating and perfecting the diagnostic methods of soil testing and leaf analysis.

An internationally known soil scientist, Dr. Humbert will serve the states of the far West, including California, Oregon, Washington, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming. Associated with him will be Forrest S. Fullmer, institute agronomist of Newport Beach, Cal., and Grant Braun, institute agronomist of Portland, Ore.

Before heading the agronomy work of Hawaii's Sugar Planters, Dr. Humbert was head of the agricultural division of the Saratoga Laboratories in Saratoga Springs, N.Y.



HEADS SOIL GROUP—J. R. Henderson, left, Florida Agricultural Extension Service, new president of the Soil and Crop Science Society of Florida, receives congratulations from P. H. Senn, University of Florida, retiring president.

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Changes in Fertilizer Practices Pointed Out at Georgia Meeting

TIFTON, GA.—Tremendous changes have come about in recent years in fertilization practices in south Georgia as well as in other parts of the nation and the world, a group of specialists pointed out at a fertilizers and soils short course held recently at Abraham Baldwin Agricultural College in Tifton.

More than 60 farmers, fertilizer men and technical workers attended the course, for which Dean T. M. Cordell, college short course director, prepared the program.

Dr. J. Fielding Reed, executive secretary of the Georgia Plant Food Society and southern director of the American Potash Institute, who had recently returned from a trip around the world, declared that interest in fertilizer in Africa, Asia and other parts of the globe has increased tremendously in recent years. He mentioned India as one of the countries where population increases are requiring greater production, and said people of that country are realizing that they must use more fertilizer to produce more food.

"In our own country and state farmers are doing better fertilization than ever, and they are more aware of opportunities of reducing cost by fertilization," Dr. Reed said.

Dr. Reed said farmers are changing their ideas about what crops to fertilize. Only a few years ago, he pointed out, landowners did not ordinarily fertilize permanent pastures of hay crops, but now they are realizing that they get more returns from their livestock by using fertilizer on the land.

Other changes that are coming about are the greater attention to placement of fertilizers, use of higher analyses and changing methods of applications, Dr. Reed said.

Glenn Seagers of Atlanta, assistant to the Georgia commissioner of agriculture, said that in addition to the 1,750,000 tons of commercial fertilizer used in Georgia last year on regular crops, 50,000 tons of fertilizer were used in the state for non-farming purposes, such as golf courses and ponds.

Mr. Seagers described a new proposed law which a committee appointed by the Legislature has prepared for presentation at the next session of the General Assembly. Among the many facets of the proposed law is designation of what is to be shown on bags of fertilizers sold, including the amount in pounds or tons brought to a farm, grade, analysis, name of manufacturer, name of seller and name of buyer.

John Hungerford, Americus, Ga., Sumter County conservationist, delved into the formation of Georgia

soils and showed "profiles" of different types of soils found in the state.

Describing south Georgia soil as being "laid down by ocean water," Mr. Hungerford said this soil is basically infertile. He said factors in decreasing fertilization include planting in crops, erosion and improper drainage. Remedies for these situations include better terracing, strip cropping, contour cultivation, construction of proper waterways and liberal use of fertilizer to replace nutrients removed by growing crops.

R. L. Carter, soil scientist at Georgia Coastal Plain Experiment Station, said south Georgia soil generally needs lime, and said the liming needs did not necessarily stay the same all the time. He advised checking for lime needs every two or three years, and suggested placing a record of the findings on a soil map of the land.

Mr. Carter said that increase of nitrogen on the land brings a need to increase potash as well. He added that bountiful yields of crops took heavy supplies of nutrients out of the soil, and said the plant foods removed should be replaced to keep up production.

S. A. Parham, agronomist with the Georgia Coastal Plain Experiment Station, said fertilizer is being used as a means of improving efficiency, and as a substitute for labor because fertilizer has not gone up in cost as has labor.

He pointed out that corn is a nitrogen-loving plant, and that this grain occupies 35 to 40% of acreage in Georgia. Corn is grown in a wide variety of soils, and with newer hybrid varieties that stand up well, high fertilization is possible.

J. D. Miles, agronomist at the Georgia Coastal Plain Experiment Station, gave recommendations for tobacco fertilization.

Horticulture crops require a variety of fertilizer rates and amounts varying with the type crop, Dr. S. A. Harmon, associate horticulturist at the Georgia Coastal Plain Experiment Station, pointed out. Minor elements such as boron, magnesium and zinc are important in some of these crops.

Warren Marchant, agronomist at the Georgia Coastal Plain Experiment Station, stressed the importance of having soils tested, and of watching especially for nitrogen deficiency in grazing crops. Both temporary and permanent pastures need adequate fertilization. Experiments have shown that application of generous amounts of fertilizer pays off in cattle gains, Mr. Marchant said.



SHORT COURSE SPEAKERS—A group of Georgia specialists on fertilizers and soils participated in the program of a recent short course given at Abraham Baldwin Agricultural College in Tifton. Shown above, left to right, are John Hungerford of Americus, Sumter County conservationist for the Soil Conservation Service; R. L. Carter of Tifton, soil scientist with the Georgia Coastal Plain Experiment Station; Dr. J. Fielding Reed of Atlanta, executive secretary of the Georgia Plant Food Society and southern director of the American Potash Institute, and Glenn Seagers of Atlanta, assistant to the Georgia commissioner of agriculture. Also on the program and not shown were several other research scientists of the Georgia Coastal Plain Experiment Station, including J. D. Miles, Dr. S. A. Harmon, S. A. Parham and Warren Marchant.

NOXIOUS NITROGEN?

TIFTON, GA.—Some farmers may be displeased with beggarlice weeds that grow in their fields, but George Payne, Tift County farmer, counts the weeds as valuable in his operations.

Mr. Payne figures that beggarlice is a legume and thus can store nitrogen in the soil in addition to adding organic matter to the soil. He says Tift County soils need abundant organic matter.

After Mr. Payne harvests his corn he allows cows to eat the weeds, and they like it. He grows about 85 bushels of corn an acre, which is more than twice the state average.

Numerous Corn Borers Noted in Maryland

COLLEGE PARK, MD.—Maryland has numerous overwintering corn borers and, as in the past, the highest number are on the Eastern Shore.

In a survey by Wallace Harding, extension entomologist of the University of Maryland College of Agriculture, which showed the number of borers to be the second highest on record, borers on the Shore averaged 191 each 100 cornstalks.

Populations in central, southern and western Maryland are considerably below this.

Sacramento Is Site Of Weed Conference

SACRAMENTO—Sacramento will host an estimated 1,000 delegates of the 12th annual California Weed Conference, Jan. 19-21. Conference sessions, opening at 1 p.m. Tuesday, Jan. 19 and closing midday Jan. 21, will be held at the Sacramento Memorial Auditorium. The public is invited to participate.

Attending the meeting will be farmers, farm advisors, county agricultural commissioners, state and federal weed workers, county highway commissioners, mosquito pest abatement officials, irrigation district representatives, state and federal forestry officials, commercial pest control operators, representatives of chemical companies manufacturing weed control products, farm editors, broadcasters, agricultural students and others.

Arrangements for the conference are being made by C. Bruce Wade of Redding, president of the California Weed Conference, and Walter S. Ball of Sacramento, chairman of the arrangements committee. Mr. Wade is the agricultural commissioner of Shasta County and Mr. Ball is the chief of the Bureau of Rodent and Weed Control and Seed Inspection, California Department of Agriculture.

Farm Problem Views Indicate Rockefeller, Sec. Benson May Be Hoeing in Same Row

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON—The Republican Party political coin is now in mid-air. Will it fall heads-up for Rockefeller or for Nixon?

This game of chance poses a major problem for the chemical industry for the next presidential term as far as the farm economy is concerned.

In Minnesota recently Mr. Rockefeller virtually embraced the Benson farm program, but with accelerated speed when he advocated a doubling of the Conservation Reserve Program to the total of 60 million acres. These acres, he said, should be removed from small and inefficient farms and plans be laid to aid those farmers to either remain on their farms or be given opportunity to seek off-farm employment in local industry.

Mr. Rockefeller called his plan a "dynamic" one. It is that, since it would speed up the Benson ideas which the current Democratic congress has declined to approve.

Mr. Rockefeller may be in water over his head when he talks about protective price supports based on cost of production since few, if any, agricultural economists can definitely announce the cost of producing a bushel of wheat or corn or a pound of cotton.

There just isn't any common denominator for such costs.

But for the chemical agricultural industry, the Rockefeller ideas are those of Mr. Benson—who, incidentally, the New York governor embraced in his Minnesota appearance.

The political gambits are newsy and sensational since the public press finds them all of current attention value.

However, it is more important to repeat some old hat to readers of Croplife. Several years ago this publication reported a statement made by Dr. Russell Coleman, executive vice president, National Plant Food Institute, before a group of U.S. Department of Agriculture economists that the surplus problem was an incident in the growth of the agricultural economy of the nation.

Dr. Coleman at that time said our agricultural surplus could be

solved if the nation would adjust itself to adequate use of plant foods on efficient farm land, and if the cultivated acreage of the big crops were cut back substantially until such time as the surpluses were used.

Mr. Rockefeller urges removal of land from production. He urges that cost of production be made a benchmark of price support for the farm community. In that respect he appears to be on uncertain ground—but he at least has given lip-service to Dr. Coleman, since he accepts the philosophy that the worry over surpluses is transient and that as quickly as we gear ourselves to modern cost ideas for production of wheat, corn, cotton or what have you the clearing in the woods is evident.

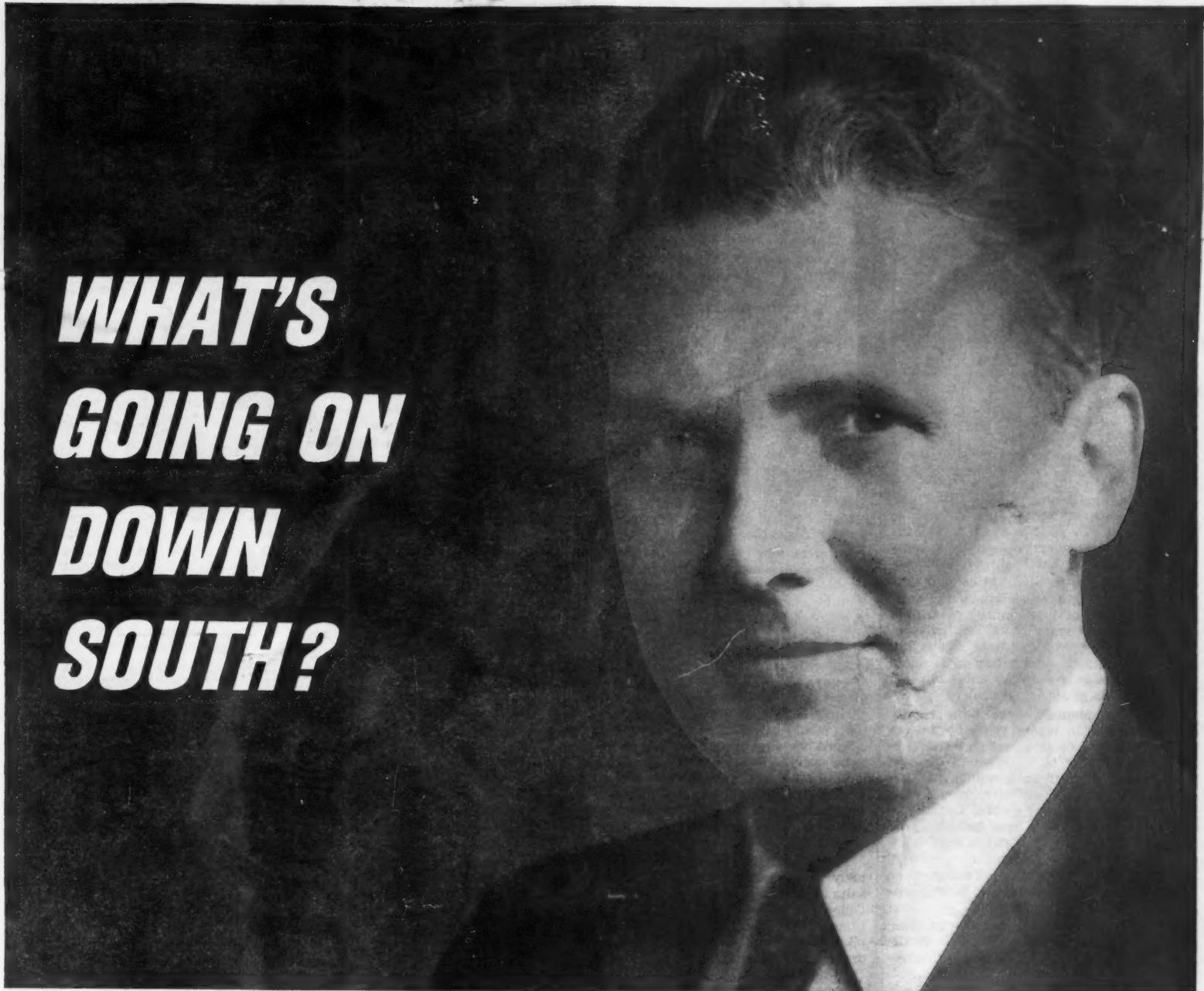
At that time several years ago when Dr. Coleman uttered his warning he was not disturbed that there would be any major decline in the use of chemical fertilizers or agricultural chemicals. In fact, he suggested that on balance it might mean a more aggressive promotion of those products—all varieties—on the farms which economic necessity held into crop production.

At that time USDA had issued a report revealing from extension service farm economists that even in the best farmland areas farmers were not making the maximum use of chemical materials in growing or protecting their crops.

The Rockefeller farm plan, while yet to be spelled out in detail, is little less than an endorsement of Sec. Benson who has been preaching this idea up hill and down dale for almost seven years.

It appears that there is nothing to fear from the Rockefeller ideas which would be detrimental to the commercial interests of the farm chemical industries. In fact it may be most beneficial since it would set a standard of buyers who generally speaking may be a "Park Avenue" trade as to credit. It would dramatize the effectiveness of adequate use of farm chemicals in production of a crop and also show handsome profits even though land use was sharply reduced.

WHAT'S GOING ON DOWN SOUTH?



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THE PROGRESSIVE FARMER

Fertilizer Placement Key For Getting Full Benefit From Nutrients in Soils

By F. W. Smith*

Agronomist, Kansas State University

FERTILIZER placement generally is interpreted as the precision deposition of such materials so as to obtain maximum agronomic and/or economic advantage from the use of nitrogen, phosphate and potash-containing substances.

First we might ask, "Why is it necessary to have precision fertilizer placement?" This can be justified by: (1) The necessity of banding soluble phosphate materials so as to minimize undesirable fixation by the soil, (2) to accomplish the maximum desirable starter effects, (3) to insure against salt injury when too much nitrogen and/or potash is placed in direct contact with the seed, (4) to insure maximum reaction between soil and insoluble phosphates such as ground raw rock phosphate, and (5) to insure against any other undesirable effects that might be produced.

Precision fertilizer placement has achieved great success with such crops as potatoes, canning peas, field beans, and sugar beets. Sensitivity of these crops to fertilizer injury and the relatively high values of the same have made it very profitable to practice this precision placement.

Corn planters have been greatly improved in recent years by the development of attachments which permit banding of fertilizer to the side and at a depth somewhat below that of the seed. These attachments have been more easily adapted to the surface-type planter than has been true with the lister. Perhaps in the interest of both precision fertilizer placement and soil conservation, more surface planting and less lister planting should be encouraged.

The conventional combination grain and fertilizer drill was one of the most versatile and most effective fertilizing devices ever developed—particularly when used for purpose of applying mainly phosphatic fertilizers to small grains. However, with the development of high nitrogen mixed fertilizers and the adaptation of the grain drill to the planting of grain sorghum, this drill became progressively less well suited until it now appears that a major change in the design of this implement may be necessary. Such change in design will not come about easily nor will it come about cheaply. Therefore, more research is needed before we can expect the major farm equipment manufacturers to risk such an undertaking.

Broadcast spreaders developed rapidly after World War II. These were popular because considerable saving in time was possible. The trailer-type spreaders were succeeded by large end-gate spreaders mounted on trucks. These types of applicators permitted cheap distribution of fertilizers, especially in the Corn Belt. This type of distribution has been somewhat less spectacular in the Wheat Belt because precision placement, particularly of phosphates, has merit.

Crop growth characteristics must be considered when the merits of precision placement are evaluated. Small grains which are planted in cool soil naturally develop root systems rather slowly and unless available phosphates are banded near the roots of the developing seedling, these crops will not develop in the fall and winter months as they should. The following spring these improperly established wheat and barley plants fail to tiller properly, probably develop undersized heads and generally mature rather

late. Any or all of these effects may limit response to fertilizer.

Summer growing crops such as corn and sorghum have more opportunity to develop a normal root system. Therefore, starter effect from banded phosphate may be less important than with wheat. However, because large amounts of nitrogen may be deposited at planting time, careful separation of the fertilizer band and the seed row may be even more important than with small grains.

Large seeded legumes, soybeans in particular, which are grown as full-season summer crops generally show less starter response than most crops. Therefore, broadcasting and plowing into the soil of fertilizer for such is usually desirable.

Farmers, when deciding whether or not to employ precision placement of fertilizers, must consider the factors of time versus economy of fertilizer purchase, convenience of operation and the availability of fertilizer machinery. Within reasonable limits, even with small grains, lack of efficiency of phosphate recovery by plants may be overcome by broadcasting larger amounts of phosphate than would be required if band applications are employed. Thus the large-scale operator whose time is very valuable may find it more economical to broadcast his fertilizer than to try to drill it at planting. There can be no doubt but what recent trends suggest this possibility.

Fertilizer characteristics, particularly as pertain to solubility of the salts comprising the same, control the dangers involved insofar as germination injury is concerned. The phosphate fraction of mixed fertilizer generally does not endanger germination. By the same token the nitrogen component is the greatest cause of injury—being about 50% more harmful per unit of nitrogen than per unit of potash. Obviously, then, fertilizer injury can be minimized by resorting to separate applications of the nitrogen and phosphate components.

Certain nitrogen carriers, because of their content of free ammonia, must be placed well into the soil in order to prevent nitrogen escape. Anhydrous ammonia and the pressure type nitrogen solutions fit this category. Other liquid fertilizers, both mixed and the non-pressure types of nitrogen carriers, have the same agronomic characteristics as do the solid substances used in their preparation. Therefore, the same rules apply as already outlined for conventional solid materials.

Iowa Fertilizer Dealers Plan Jan. 5 Meeting

AMES, IOWA—Iowa fertilizer dealers will hold their 12th annual conference at Iowa State University Jan. 5. F. E. Hartzler, small business management consultant from Emporia State Teachers College, Emporia, Kansas, will speak on "The Heart of the Problem."

Iowa State's nationally-known rural sociologists, George Beal and Joe Bohlen, will present, "What Is Your Customer Like?" This presentation is based on research recently completed by the department of economics and sociology under the direction of Dr. Bohlen and Dr. Beal. Iowa State University agronomists specializing in fertility will review changing cropping methods, fertilizing methods and related problems in the area of fertility.

*Paper presented before 12th Kansas Fertilizer Conference, Dec. 8, 1959.

Kansas Registers 'Good' Crop Year, Agronomists Say

MANHATTAN, KANSAS—The past crop year was a good one—and in some cases a phenomenal one—for fertilizer usage, Kansas State University agronomists reported at the opening session of the 12th Kansas fertilizer conference at Manhattan recently.

At the Columbus experimental field corn yields for the best permanent fertility plots averaged 40 bu. an acre between 1923 and 1958, and in only one year did yields exceed 80 bu. an acre. But last year the best combination of lime, rock phosphate and potash produced 91 bu. an acre. And this past growing season the best treatment produced 115 bu. an acre.

Floyd Smith, K-State agronomist, said favorable July rains helped. But he thought most of the credit must go to improved hybrids, proper plant population, and proper time of planting. He estimated these things have increased yields at Columbus from 10 to 30 bu. an acre.

"It is in southeast Kansas, because of the high annual rainfall and lack of natural soil fertility, that the potential for fertilizer usage is greatest," he commented.

Corn yields of 100 bu. an acre were obtained with as few as 10,500 plants, provided all plants survived and were uniformly distributed. Increasing the stand to 15,700 plants increased the average yield to 125 bu. an acre, but further increases in plant numbers actually reduced yields.

Water solubility of phosphorus did not seem an important factor in 1959 studies. There was only meager evidence that water solubility as low as 10% was inferior to more highly soluble materials. Generally, mixed fertilizers with a considerable amount of nitrogen were more effective for small grains than those low in nitrogen.

No advantage in separate fertilizer and seed placement for wheat and oats was indicated for the 1959 crop, but preliminary observations this fall revealed that separate placement gave distinctly better germination.

Superphosphate was somewhat more efficient than rock phosphate for the wheat crop in 1959, with rock phosphate performing relatively better with alfalfa and red clover than with cereal crops. Excellent results were observed with rock phosphate on hay crops at both Hutchinson and Mound Valley, and with corn at Mound Valley.

Workshop Planned

WASHINGTON—A fertilizer sales promotion workshop will be held Jan. 21 at Hotel Hershey, Hershey, Pa., according to a recent announcement by the National Plant Food Institute.



Thomas J. White



Robert L. Borg



Gerald E. Forbes



Robert L. Harper

Personnel Changes Noted By Bradley and Baker

NEW YORK—Thomas J. White has been appointed fertilizer sales manager for Bradley and Baker. Formerly St. Louis area sales manager, Mr. White is now located in the New York office.

Several new appointments have been made in the St. Louis territory. Robert L. Borg will replace Mr. White as St. Louis area sales manager.

Agronomists-Industry Meeting Plans Readied

CHICAGO—Plans are under way for the 12th annual joint meeting of Midwestern agronomists and fertilizer industry representatives in Chicago, Feb. 11-12, under the auspices of the National Plant Food Institute's Midwest office.

The two-day program is expected to draw more than 700 to the Edgewater Beach Hotel in Chicago. Dr. George E. Smith, chairman of the University of Missouri's soils department, will be chairman and Dr. M. B. Russell, head of the University of Illinois' agronomy department, will be co-chairman.

Among headline features will be a report on "What Farmers Expect from Their Fertilizer Dealer," by Drs. Joseph Bohlen and George Beal, Iowa State University rural sociologists. The report will summarize results of a study of 118 fertilizer dealers and 315 farmers. Drs. Bohlen and Beal will cite the characteristics of good fertilizer dealers and how they profitably serve their farmer customers; and they will enumerate the shortcomings of indifferent and poor dealers.

Soils specialists from four Midwestern agricultural colleges—Purdue University, Michigan State University, the University of Missouri and South Dakota State College—will present reports on the latest research on fertilizer use in cutting costs of crop production and increasing net income.

Another feature will be one of the first showings of the new NPFI color movie, "Bread from Stone." The film, designed particularly for presentation to non-farm groups, dramatizes the contributions of agriculture to the nation's growth and progress.

J. D. Stewart, Jr., president of the Institute, and Dr. Russell Coleman, NPFI executive vice president, will welcome the agronomists, industry representatives and visitors to the meeting.

The first day's session will open at 1 p.m. Conferences of research and extension agronomists from 13 Midwest states are slated for two days preceding the joint meeting.

Texas Fertilizer Firm

KELLER, TEXAS—A new fertilizer firm, the Texas Agricultural Chemical Co., is now manufacturing fertilizer from the sewage sludge from the city of Ft. Worth.

The organic fertilizer, known as Tacco, conforms to the state health sanitation laws, according to the company president, R. Hamilton Clement.

The fertilizer is manufactured for both farm and home lawn use. An information program will be started soon concerning the new fertilizer, said Mr. Clement.

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1960

(Continued from page 1)

tute's educational efforts in terms of plant food demonstrations which clearly illustrate the values of proper fertilization; thirdly, the basic fact remains that the return from money invested in fertilizer still brings the farmer the highest rate of return from any money spent in producing the crop.

"In looking at all factors, it appears that the fertilizer industry will have to make a more determined effort than ever if it expects to hold the gains in fertilizer usage made in 1959."

The pesticide trade is likewise reviewing a prosperous 1959 season, so far as volume is concerned, and is expecting the 1960 sales to continue the upswing. Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., Washington, D.C., in looking over the 1959 record, expresses confidence that farmers will become more and more aware of the economic value of pesticides not only in 1960, but in all the years to come.

"In the 1959 crop year," he told Croplife, "the pesticide industry has again shown progress and growth over the previous year. Sales at the level of the basic manufacturer advanced some 5% to an estimated \$278 million for the year."

Converting this figure into total value of formulated and packaged pesticide products at the user level, an estimated total sales value of \$550 to \$600 million for 1959 is revealed, indicating that the business of pesticides is moving rapidly toward becoming a billion dollar industry.

Profits did not keep pace with rising sales volume owing to lower prices on some products. A review of price trends of some major pesticides compared with other farm goods and services shows that while most prices have substantially increased over the past ten years, the great majority of pesticides have experienced price declines.

"Sales gains in 1959 have taken place without the stimulus of any spectacular outbreak of insect or plant disease infestations. It is significant to note that the increases appear to be solidly based upon the growing recognition of the benefits produced through improved pest control measures in food and fiber crop production, in the field of public health, as well as in other areas where pesticides are gaining in economic importance each year, such as forestry management and in roadside development and maintenance programs."

Substantial gains for 1960 are predicted by spokesmen of the anhydrous ammonia and fertilizer solutions industries who foresee a continuation of the year-by-year increases noted for these materials during the past several seasons.

Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute, Memphis, Tenn., told Croplife that 1960 "bids fair to be another banner year for anhydrous ammonia, based on experience and performance in 1959."

"Ammonia usage has increased every year since its first introduction, and an estimated 700,000 tons were used during the fertilizer year ending June 30, 1959. With increased capacities, more knowledge of the product, and increased farmer acceptance, the primary limiting factors will be application equipment during the peak season, and weather conditions."

"I predict that an annual consumption of 1,000,000 tons of anhydrous ammonia will be reached within the next two years."

Mr. Criswell observes further that the growth of the ammonia-nitrogen market depends almost entirely upon the growth of agricultural consump-

tion which accounts for 80% of the total. "Whether that ammonia goes for direct application, for conversion into other nitrogen materials, for ammoniation in solid fertilizers or for primarily industrial purposes, it has a definite stake in the agricultural market. This trend, we feel, is well defined, and must be the pattern for the future."

Sales prospects for fertilizer solutions appear bright for 1960, according to H. S. Surles, Jr., Planters Cotton Oil & Fertilizer Co., Rocky Mount, N.C., newly-elected president of the National Fertilizer Solutions Assn. He told Croplife that members of his association enjoyed a nice business in the year 1959, and by and large, they look forward to another good season in 1960.

"However, I seem to detect a feeling of caution among our members as to the outlook for 1960. I believe that our members will go forward during 1960, continuing to render 'top notch' service and help to the farmer. At the same time, I believe they will make this forward step with an eye to the future."

"Our members are certainly not pessimists by any means; they are businessmen and are trying to operate in a business-like manner, remembering that circumstances alter cases."

Mr. Surles, though disclaiming the powers of a seer, predicted the following points for the 1960 season:

1. The new year should show an over-all increase in the use of nitrogen solutions and liquid fertilizers.

2. Regional use of these materials will vary considerably in the various parts of the country.

3. Farmers, as a whole, are caught in a vise, price-wise, and major crop shifts could take place this year.

4. 1960 could be a pivotal year for any person whose business is dependent on agriculture.

CONSERVATION

(Continued from page 1)

manent pasture and orchard land.

The land in the conservation reserve in 1959, amounting to about 5% of the nation's total cropland, would normally have produced large quantities of farm commodities to add to existing surpluses, the Department points out. A current survey shows that 3.5 million of the acres were formerly devoted to corn, 3.5 million acres to grain sorghums, 2.3 million acres to wheat, and nearly 12 million acres to other crops, including forage.

Grass cover is the most popular of the conservation practices carried out on conservation reserve land, especially in the Great Plains States, the Department reports. Grass is being established or maintained on more than 20 million acres, much of it consisting of dryland which was planted to grain under wartime needs.

Nearly 2 million acres of the conservation reserve acreage are being planted to forest trees, chiefly in the Southeastern States. Tree-planting contracts must be for 10 years, and cropland planted to trees is likely to remain out of production for even longer periods.

Nearly a quarter-million acres of the current conservation reserve acreage are being devoted to wildlife cover and water impoundments for wildlife. More than 6,000 ponds for water conservation are being built on conservation reserve land.

The conservation reserve is a program under which farmers voluntarily sign contracts with the Federal government to retire excess cropland from production. The government makes an annual rental payment for the land and will assist in establishing the conservation use. The annual rental payment for 1959 averaged \$11.53 per acre.

PUMPKIN CATERPILLAR FOUND

JACKSONVILLE, FLA.—Another foreign insect pest—this time a bug called the pumpkin caterpillar—has been found in Florida, according to the Department of Agriculture.

In confirming the disclosure that the pest is now in Florida, the department said it is a pest of the gourd family and has also been known to attack cotton, soybeans, beets and eggplant.

Dr. Donald Everhart Named IMC Geologist

SKOKIE, ILL.—Dr. Donald L. Everhart has joined International Minerals & Chemical Corp. as chief geologist in the mining and exploration department. He comes to IMC after 10 years as chief geologist for the Atomic Energy Commission. Prior to that, he was geologist with the minerals deposit branch of the U.S. Geological Survey for six years.

Dr. Everhart is a graduate of Denison University, and earned his doctorate in geology at Harvard University.

Pesticide Bulletin

CORVALLIS, ORE.—To help farmers decide if commercial application of weed and insect control chemicals will pay, a bulletin has been published by the Oregon State College agricultural experiment station.

Farmers can't afford to use pesticide chemicals unless they can be applied economically, the bulletin points out. To help farmers decide if commercially applied chemicals pay, author Dr. Curtis Mumford, OSC agricultural economist, included a table showing the additional yield per acre needed by each of 10 representative crops to pay for a chemical and its commercial application.

FDA Announces New Lab Techniques To Cut Cranberry Testing Time in Half

WASHINGTON — The Food and Drug Administration has announced that improvements in the laboratory method of analyzing cranberries for aminotriazole will cut the testing time and cost in half.

The improved method, which is as accurate and safe as the earlier method, will be put into effect immediately in FDA laboratories and made available at the same time to the cranberry industry and commercial laboratories for their use.

At the same time, FDA announced that its laboratories have already cleared for sale 31,908,000 lb. of cranberries using the earlier method.

The cleared berries include 22,627,400 lb. of processed cranberries—mostly canned cranberry sauce and cranberry jelly—and 9,281,400 lb. of fresh cranberries. Information on the quantities of cranberries and cranberry products cleared by private laboratories is not yet available.

Announcement of the improved laboratory testing method was made at the conclusion of conferences between food and drug officials and representatives of Ocean Spray Cranberries, Inc., the Cranberry Institute, and some cranberry growers. Members of Ocean Spray Cranberries, Inc., grow and market about 75% of the annual crop. Arthur S. Flemming, Secretary of Health, Education and Welfare, participated in the opening and closing sessions of the discussions.

RESEARCH

(Continued from page 1)

ethylene oxide, a highly flammable sterilant, can be safely used as an aerosol-dispensed pesticide, a discovery that promises to improve control of insects and disease organisms in beehives, laboratories, grain storage facilities and in sanitary applications.

Raising of enough cotton boll weevils for laboratory testing on a year-round basis was made possible by the development of a synthetic weevil diet that does not require aseptic techniques. The discovery is expected to speed up Federal-State research against the pest.

An insect pathogen—Bacillus thuringiensis—was tested successfully in field trials for control of budworms and hornworms in tobacco.

Many crops can be saved during periods of drought by irrigation with brackish water, experiments showed. Such water may be available in coastal areas where the sea has flooded surface water sources or infiltrated wells used for irrigation.

ARS scientists also demonstrated that it is possible to achieve 90% decontamination of agricultural land from radioactive fallout by raking off straw mulch, removing sod, or scraping off surface soil. Removal of standing crops proved largely ineffective.

Four new federal laboratories—at Tempe, Ariz.; Morris, Minn.; Watkinsville, Ga., and Oxford, Miss.—were dedicated for soil and water studies. Each is to be devoted partly to basic research.

Oxone, a form of oxygen found in polluted air on sunny days, may cause injurious lesions on tobacco leaves, according to findings reported by ARS crops scientists. Seed of the first root knot nematode-resistant tobacco was released to growers during the year.

DIVIDEND DECLARED

PHOENIX, ARIZ.—Arizona Fertilizer & Chemical Co.'s board of directors has approved a quarterly dividend of 12.5¢ per share, payable Jan. 15, 1960, to stockholders of record Jan. 2, 1960.

Industry representatives initiated the discussions with a request that

on the basis of the extensive testing already done the remaining processed cranberries now on the market or ready for market be cleared as safe.

FDA concluded—and Sec. Flemming concurred—that this proposal would not provide adequate assurance that these berries are free of aminotriazole, because this can be determined only by laboratory tests of each lot.

Residues of aminotriazole have been found in 9 lots of processed cranberries totaling about 27,400 lb. out of a total of 22,654,800 lb. tested. Residues of aminotriazole have been found in 291,600 lb. of fresh and frozen cranberries out of a total of 9,573,000 lb. tested.

Secretary Flemming stated: "I wish to emphasize that consumers may buy cranberries tested and labeled in accordance with the original plan, with confidence that they do not contain aminotriazole. I wish to emphasize further that the plan as agreed upon calls for the labeling of individual containers with the approved statements."

"I hope that consumers throughout the country will purchase cranberries as freely for this holiday season under the plan as they have in other years."

**SPECIAL
MERCHANDISING
SECTION**

BETTER SELLING

**MARKETING
NEWS AND
FEATURES**

Fertilizer Dealer's Role Important In Today's World

By W. E. IRWIN
Manager Consumer Relations
Phillips Petroleum Co.
Bartlesville, Okla.

Since his beginning, man has benefited by trading. The "toe to toe" exchange in a prehistoric jungle as well as today's "battle of wits" both represent his attempts to better his lot. Nature encouraged such activities by distributing her resources sparingly and inequitably.

The caveman bartered a surplus wife for a neighbor's axe. He may even have thrown in a string of shell beads or offered a 30 days free trial to cinch the deal. Naturally, all parties came out ahead and even made cultural progress. Many centuries and many trades later, money became a medium of exchange. There are rumors that this is still true. Money led to faster, more efficient systems of trade involving such middlemen as hucksters and retail dealers. Farmers and other consumers learned that it was safer to deal with people they knew and liked.

Our American fertilizer industry had its beginning mainly as a salvage outlet for by-products of meat packing and other industries in the 19th century. The fertilizer dealer was set up to move these bulky, low profit and smelly products to farmers. In return, he may have bought the farmers produce. Quality standards were on a "let the buyer beware" basis, but both sides gained and came to depend on each other.

The fertilizer consumers along the East Coast developed buying preferences or prejudices which influenced the dealer and vice versa. These preferences became widespread and have carried over into the Missouri market of today. Even though our fertilizers carry "guarantees" as to their plant food content, a recent survey showed that 60% of Iowa's farmers would buy the brand stocked by their local dealers. We believe this would apply generally to Missouri farmers. Consumer selling is the only truly "creative selling" so someone in the distribution chain must perform this function. Farm stores, country elevators and cotton gins usually carry supporting lines of fertilizer and represent typical retail dealerships. Occasionally mixer-manufacturers perform a retailing function in a local market. However, this is usually an expediency. An alternative practice is for the mixer to develop "Key Consumers" and let his local dealers serve them.

Since World War II, fertilizers have become "Big Business" with total U.S. sales exceeding 22,000,000 tons and grossing over a billion dollars annually. Quality-wise today's products are almost in the fine chemicals class.

Our entire distributive mechanism, including dealers and consumers, has not been able to keep up with the increase in production. Consequently, we are plagued with "growing pains." At the same time, agriculture is changing. I recently counted an av-



THE DIXIE FARM SUPPLY sales room is located just a few steps off the main street in Marks, Miss.

Encouragement of New Crop, Changed Sales Picture Help Mississippi Dealer

By EMMET ROBINSON
and ED WHITE

When severe competition in the form of direct selling in feed and fertilizer cut deeply into its normal business, a Marks, Miss., farm supply firm "rode with the punch" and actually brightened its profit picture.

Dixie Farm Supply, Inc., found its way out of the direct selling wilderness over two roads—encouraging farmers to produce a new (and mutually profitable) crop and shifting emphasis in their sales room to feature garden supplies. Both approaches to the problem were successful, according to Wayne Brown, manager.

The new crop brought into being by Dixie Farm Supply is pecans. Eight years ago the store bought a few hundred pounds of wild pecans and resold them at out-of-state points. This first venture looked promising so Mr. Brown encouraged farmers to start their own groves of improved varieties.

As feed and fertilizer competition became more severe because of direct selling by several companies, Dixie Farm Supply stepped up its pecan buying. Now, thousands of pounds of pecans, most of them high-yielding varieties from cultivated pecan groves, are shipped in bulk by Dixie each fall. The company is the only one in the county handling pecans and this line represents a major item on the black ink side of the ledger.

The pecan buying is an important traffic builder, too. "It gets customers into the store and they almost always place orders for other items before leaving," Mr. Brown said.

"One of the best things we did,"

Mr. Brown continued, "was to get into the garden supply business in a big way. We carried garden items from the very first, but when we began to feature this line in displays and actually push these sales it really paid off."

Dixie carries a complete range of garden products and related lines such as hose, sprayers and peat moss. The line was first ordered four years ago and garden supplies have resulted in increased sales each year since.

The addition of a more complete

and better merchandised line of garden supplies has attracted a large number of customers who live in town. "However, farmers and their families are also good garden supply customers," Mr. Brown pointed out. He went on to say that the activities of the Marks' garden club had sparked interest in home beautification throughout the area.

"Of course, we don't do the volume now that we did in the days

(Turn to MISSISSIPPI, page 13)

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Operating a successful farm supply business in today's competitive market is a difficult job. The successful owner and manager must have a fund of skills.

Every day the top man—the entrepreneur—is confronted with operational problems involving administration, finance, sales promotion, personnel, policy, and so on. The single-owner businessman who has the experience, ability and temperament to handle all details of his job without making an occasional mistake is rare. Usually he can count on limited advice from his staff.

Chances are that the successful farm store operator has a "high batting average" of right decisions because he doesn't have the money reserve to bail him out of many wrong ones.

Two methods of broadening the

owner's decision-making base might be considered. One is the use of an "unofficial" board of consultants and the second is the selection of an official board of directors.

One feed and grain business hired

(Turn to OVER THE COUNTER, page 14)

WHAT'S NEW

IN PRODUCTS • SERVICES • LITERATURE

No. 6997—Centrifugal Pump Bulletin

An illustrated four-page case-history bulletin on the application of Thermaflow 100, reinforced polyester molding compound, in a centrifugal pump garden sprayer, has been released by Atlas Powder Co. Constructed principally from molded polyester parts, the pump is used in conjunction with a 10-gal. mobile sprayer for insecticides, liquid fertilizers and other sprays. Thermaflow 100 provides resistance to all types of chemical sprays, the company says. The pump has only one moving part, an impeller, which is coupled directly to output shaft of the engine. For more information, check No. 6997 on the coupon and mail.

No. 6998—1960 Sprayer Line

Hahn, Inc., announces nine Hi-Boy self-propelled, high-clearance sprayer models for its 1960 line. The units are designed for application of liquid fertilizers, for weed control and for spraying of crops through every stage of growth, the company says. All machines feature rustproof aluminized-steel tanks and booms. Improvements in the model illustrated (H-300) include boosting the horsepower to 30 and the maximum speed to 20 m.p.h. The company also increased the tank capacity to 200 gal. More details can be secured by checking No. 6998 on the coupon and mailing to this publication.

No. 6000—Fork Lift Truck

Towmotor Corp. announces the Model 461 fork lift truck. The unit

is equipped with a hydraulically-operated "Unloader Accessory" which the company says speeds up loading operations and the deposit of heavy loads in warehouses and storage areas by "pushing" the entire load from the



lift truck forks with one motion. The wheelbase is 46 in. Accessory does not interfere with the normal operation of the lift truck, the company says. For details, check No. 6000 on the coupon and mail.

No. 6001—Economy Sprayer Model

John Bean Division of Food Machinery and Chemical Corp. announces the economy Model 275 C.P. sprayer. Features of the unit include a four cylinder, 70 h.p. engine, convenient controls, a choice of two pumps, unitized frame and tank and specially designed nozzles, the company says. The unit equipped with the company's Royal 25 high pressure pump delivers 24.7 gpm at 400 psi. Equipped with a company self-priming, centrifugal pump it has a capacity of 50 gpm at 55 psi. It is designed for the small or medium sized orchard and can be equipped with a 300 or 400 gal. tank. For details, check No. 6001 on the coupon and mail.

Send me information on the items marked:

- | | |
|--|---|
| <input type="checkbox"/> No. 6988—Spray Nozzle Manual | <input type="checkbox"/> No. 6996—Pail Rack |
| <input type="checkbox"/> No. 6989—Liquid Applicator | <input type="checkbox"/> No. 6997—Centrifugal Pump Bulletin |
| <input type="checkbox"/> No. 6990—Bulk Trailer | <input type="checkbox"/> No. 6998—1960 Sprayer Line |
| <input type="checkbox"/> No. 6991—Electric-Eye Manual | <input type="checkbox"/> No. 6999—Weed Killer Chart |
| <input type="checkbox"/> No. 6992—Label Maker | <input type="checkbox"/> No. 6000—Fork Lift Truck |
| <input type="checkbox"/> No. 6993—Drum Tilter | <input type="checkbox"/> No. 6001—Economy Sprayer Model |
| <input type="checkbox"/> No. 6994—Boron Guide | |
| <input type="checkbox"/> No. 6995—Insect Control Booklet | |

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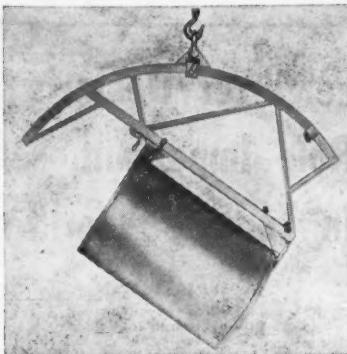


No. 6999—Weed Killer Chart

A wall chart which outlines recommended weed control methods has been published by Stauffer Chemical Co. Included are data on major crops, chemicals, application rates and weeds controlled. Sections are also allocated to the control of resistant weeds and brush along fence rows, ditches, roadsides and aerial application methods for treating sage brush, mesquite, shinny oak, post oak and blackjack oak. For copies, check No. 6999 on the coupon and mail.

No. 6993—Drum Tilter

Pucel Enterprises, Inc., announces the "Grizzly Roto-Tilt" for lifting and tilting steel and fiber drums for pouring and dumping powders, granules, chemicals and other materials. It is a one-man operation, the company says, and can be used with fork truck, chain falls, chains and hoists.



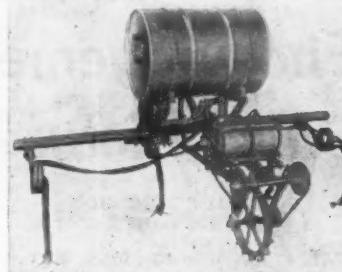
Works on old and new steel and fiber drums, containers, barrels and boxes, closed or open, battered or lopsided, the company says. It weighs 60 to 80 lb., depending on the model, and has a lifting trolley with ball bearings, safety locking bracket with serrated jaws for attachment on top rim of drum, and a recessed foot plate to hold drum bottom. For more information, check No. 6993 on the coupon and mail.

Also Available

The following items have appeared in previous issues of Croplife. They are reprinted to help keep dealers on the regional circulation plan informed of "What's New."

No. 6989—Liquid Applicator

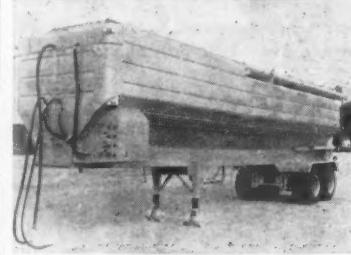
John Blue Co., Inc., is manufacturing a device called the "Liqui-Placer" for use with a tractor cultivator. The pump, which has 6, 8, 12 or 16 outlets, is capable of outputs in excess of 100 gal. per acre. The



pump is equipped with roller chain drive and can be adapted to rear tool bars, grain drills, trailer type applicators and so on, the company says. A quick change sprocket mounting makes 90 different rates of output possible. For more information check No. 6989 on the coupon and mail.

No. 6990—Bulk Trailer

The addition of an all-bulk transport model to the Chief line of self-unloading transports has been announced by Henderson Manufacturing Co. The Model BT-300R has twin floor auger conveyors and is completely hydraulic in operation, the company says. The unit features a



push-button control system which enables the operator to control the entire unloading operation from one central control panel. The unit is available with either auger or air-unloading systems, and is built in sizes up to 40 ft. in length. For details check No. 6990 on the coupon and mail.

No. 6994—Boron Guide

"Guide for Use of Boron Fertilizer" is the title of a publication made available by U.S. Borax & Chemical Corp. The guide is designed to be helpful in calculating the amount of fertilizer borate or "Solubor" equivalent to definite recommendations in terms of borax for many crops. For copies of the guide, check No. 6994 on the coupon and mail.

No. 6996—Pail Rack

Hub States Chemical & Equipment Co. announces a method of dispensing liquids from 5 gal. containers. Called the "Pour-Easy" pail rack, the unit provides a means of dispensing from this size container. The balanced container eliminates waste by spilling, the company says. Clamping of the



band is performed by tightening a plated wingnut. For details, check No. 6996 on the coupon and mail to this publication.

No. 6991—Electric-eye Manual

A 16-page booklet describing in detail miniaturized electric-eye applications for counting, sorting, monitoring, assembling and automatic weighing as applied to packaging, printing and general promotion, has been announced by Photomat, Inc. The equipment described in the manual ranges from direct or partial cut-off to reflector type units. It contains an expanded section dealing with specific in-plant installations. Technical and specification data includes dimensions, circuitry,

foursome . . . "Won't one of you laymen please say a few appropriate words?"



A Sultan annoyed with his harem, Thought up a good way to scarem;

He brought in a mouse

Which he freed in the house, And called the result harem-scarem.

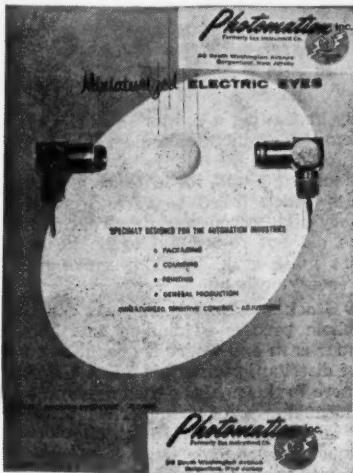


There was a robbery at the museum one night and two of the skeletons were so scared that their bones rattled. Finally one turned to the other and said: "If we had any guts we'd get out of here."



Coroner: You say this woman shot her husband at close range. Did you see any powder marks on the body?

Witness: Yes. As a matter of fact, that's why she shot him.



speed, monitoring and relays. For copies check No. 6991 on the coupon and mail.

No. 6995—Insect Control Booklet

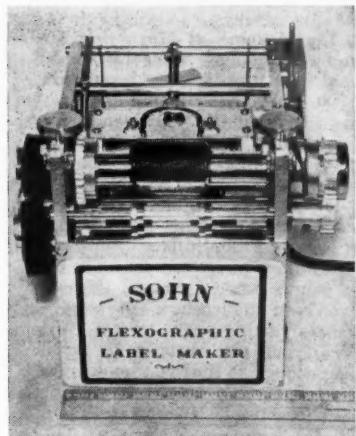
A 10 page booklet entitled "Better Control of Insects in Stored Grains" has been published by Stauffer Chemical Co. Among subjects discussed are sanitation methods, grain protectants and fumigants. A feature is a wall chart which includes identifying sketches of principal stored grain insects. For copies of the booklet and chart, check No. 6995 on the coupon and mail.

No. 6988—Spray Nozzle Manual

Spraying Systems Co. announces the availability of a spray nozzle manual for liquid fertilizer sprayers. The extensive catalog contains illustrations, blueprints, statistical data, specifications and information about spray nozzle design and application. All of the company's line of spraying equipment is described. For copies of the catalog, check No. 6988 on the coupon and mail to this publication.

No. 6992—Label Maker

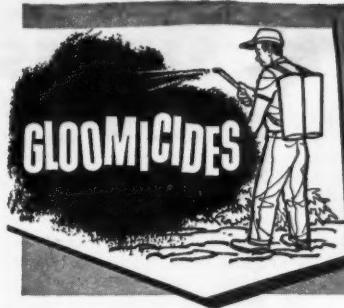
Sohn Manufacturing, Inc., announces a flexographic printing press which prints and diecuts on pressure sensitive label paper, or score cuts on gum, heat seal or plain paper.



Size is 9 in. by 9 in. by 9 in., without the guard case. Weight is 40 lb. It prints 6,000 labels an hour, and colors and printing plates can be changed in seconds, the company says. For further details, check No. 6992 on the coupon and mail.

PLANS FORMULATED

SALEM, ORE.—Forage fertilization demonstration plans were recently drawn up here during a meeting of area fertilizer dealers, livestock industry representatives and Pacific Northwest Plant Food Assn. officials. Hollis Ottawa and Ben Newell, Marion County agents, are receiving demonstration cooperation from Grant Braun, American Potash Institute, and Glen Holt of the U.S. Borax Co.



Mac: "How much is a haircut?"
Barber: "Two dollars."
Mac: "How much is a shave?"
Barber: "One dollar."
Mac: "Shave my head."



"Junior, don't use such bad words," snapped the proud mother.

"Well, Shakespeare used them," replied Junior.

The mother thought for a moment, then reprimanded: "Then don't play with him any more."



The young wife was pleased to have her husband call her an angel. Unaccustomed to such compliments, she asked him why he called her that.

"Because," he said, "you are always up in the air, you are continually harping on something, and never have a thing to wear."

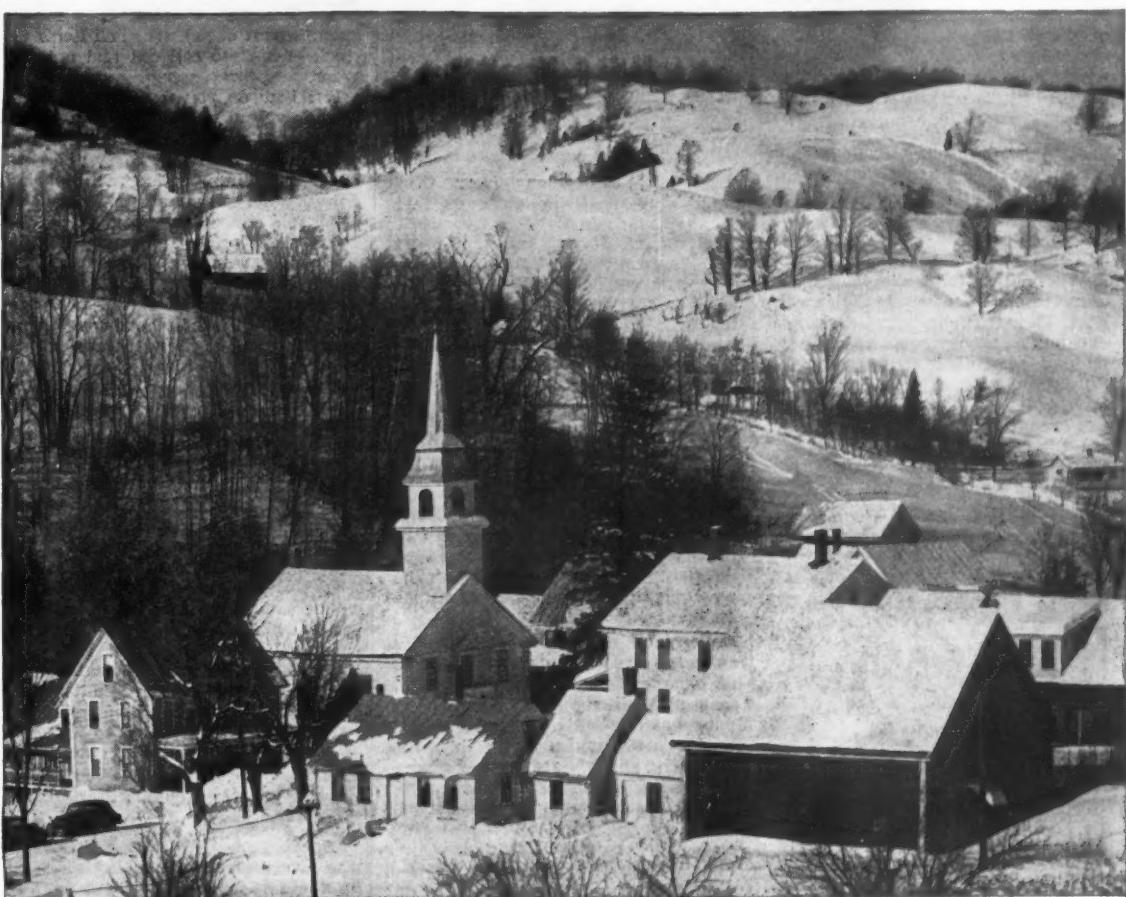


Why not put the designers of ladies' bathing suits in charge of government budgets?



The minister was whaling away with his golf club trying to get out of the sand trap. Finally he lofted his ball only to have it go over the green into a trap on the other side.

Red-faced and exasperated he turned to the other members of the



How to support America's Peace Power with each Christmas Bonus

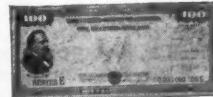
If your Company is now planning employee Christmas gifts or year-end bonuses, why not make each remembrance a gift of thrift—with U. S. Savings Bonds? Every Bond you give contributes to our nation's Peace Power; it represents for the man or woman who receives it, a tangible Share in America.

By installing and promoting the Payroll Sav-

ings Plan for U. S. Savings Bonds you can offer your employees a welcome year-round gift.

Contact your State Savings Bond Director for information about the new 3 1/4% Series E Bonds and for Payroll Savings materials and assistance. Or write to the Savings Bonds Division, U. S. Treasury Department, Washington 25, D. C.

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Controlling Your Business Future

By F. L. FLETCHER

Vice President, Alderson Associates, Inc.
Philadelphia, Pa.

"My business is doing all right, I guess. But what about tomorrow? Shall I be ahead of the game, or shall I go backward?"

These sorts of questions have occurred to many a businessman, particularly many a small businessman, more than once in his life. Unfortunately, most of them feel that there is really nothing they can do to shape the course of tomorrow's affairs. That's where they make a mistake. Fact is, you can do something about controlling your business' future. Yes—controlling its future.

• Facing the Future with Facts. Obviously, haphazard methods and wishful thinking won't do the trick. But some constructive steps are possible—even for very small firms. Crystal ball gazing is no way to control your business' future. Instead you need facts. What sort of facts? There are, of course, many steps that lead to the desired goal of controlling your business' future. This Aid will discuss four of them. Start with:

Better Use of Your Money

Many small businesses simply don't make the fullest use of their available cash. And yet it is small business which can least afford to ask the plaintive question, "Where does the money go?"

• Where Does the Money Go? Large corporations know where their money goes. Despite their huge intake and expenditures, they could tell you day by day what their cash position is. Sure (you may object), but haven't they got armies of accountants and tax executives to supervise and channel their money? Well, that's true. On this level you certainly can't compete with them; but this does not

mean that you can't keep an adequate record of the cash flow in your own organization.

To begin with (and this starts you off on the road to controlling your business' future) study your firm's present cash flow. What's coming in, what's going out? Next, suppose you try to forecast the cash flow for the next three months. Could you do it?

After you answer this question, ask yourself these questions:

(1) Do you regularly add up your sources of accumulating cash and subtract your requirements for disbursing cash, thereby measuring your net cash position against your estimated needs?

(2) Do you maintain a weekly cash position analysis that shows on one piece of paper very simply how much money is in your bank account, and what receivables are outstanding that you would normally expect this week?

(3) Do you know payables for this week by main items?

(4) Do you know your billings to date this month, and do you have an estimate of the total billings for this month?

Knowing the answers will help you keep a firm grip on the economic pulse of your organization.

• Balancing the Books. Many firms must wait until the close of their books, about ten days to two weeks after the end of each month, to ascertain the profit and loss picture. However, you can generally get a rough idea from existing accounting figures that will enable you to detect danger signals in your operating results in a matter of a few hours. For instance, by experimenting, one company found that when its wage cost exceeds 40% of its billings, it starts to face a problem. Such figures you can get from your records without much paper work or a long time lag.

Different companies will, of course, require different comparisons, but the important thing is to experiment and develop workable guide ratios that will quickly show the need for management action.

• You and Sources of Credit. Most concerns at some time require the use of bank assistance. Therefore, it's a good idea to keep on good terms with your banker. Have him out to your business now and again, or take him to lunch; and it's also a good idea to discuss your business problems with him at least a couple of times a year. After all, the time to develop a mutual understanding with your source of credit is when you do not need help. If your banker understands your business and its problems before you need his assistance, he will be in a much better position to advise you when and if you do need help. In fact there is much to be said for borrowing occasionally when times are good, provided the borrowing serves a useful purpose.

Summing Up: It will help your business if you (a) develop a cash flow forecast and weekly incoming and out-going cash analysis, (b) maintain a rough but quick danger signal index, and (c) anticipate your banking needs.

Better Control Over the Product Mix

You'll reach another milestone on the road to controlling your business' future once you gain a better understanding of, and control over, product lines.

• What Products Have the Volume? Product lines, of course, are tied up with profits—and vice versa. Well, where do your profits come from—who, in effect, pays your way? Assume for a moment that you are the owner of a record shop. If the store is one of any size, you'll offer a wide selection of musical wares. But not all of your records and albums are selling equally well. Right now, for instance, there is that new singer—Elmer Ross—all the teen-agers are crazy about

(and teen-agers represent a large part of your market). So you want to stock as many of Elmer's records as possible. That presents a space and policy problem: Should you try to cash in on such a "quick-mover" at the expense of some standard, but slower-moving items? Obviously, you can't stock every record that is being put out; you have to make a choice (and this is true in every type of business). Before you make a hasty decision, however, simply on the basis of the sales volume of Elmer Ross records, you'll have to find out whether it's more profitable to sell Elmer Ross "singles" or continue to concentrate on slower-moving, but higher-margin Viennese waltz albums.

• What Products Have the Margins? The record store example is an oversimplification. But it does point out the need for finding out which product line is producing the most money quickest at the least cost to your store. The answer then calls for a management decision: which items to stock—which to sell out and not reorder.

But how do you find the answer? Certainly, sales slips, if you have them, will be a great help, and the more information they carry, the better. Typical information will include: date of sale, salesman's name, type of item sold (including facts like size, color, style, price, and quality). This up-to-date record will keep you in touch with the sales story of all of your items. Lack of such knowledge is bound to make it hard for you to control your business' future. Items that don't move take up space (and space is money), and ties up cash. That's what Al Benton found out.

Al owned a small hardware-and-paint store which was located in the suburbs of a major metropolitan center. Al originally had run a store in the center of the city, and mentally he was still geared to that kind of operation. In other words, he stocked items (such as large floor sanders or painters' scaffolding) which were designed for professional carpenters and builders, but which were too complicated and costly for the average, do-it-yourself home owner in his community. Unfortunately, Al failed to see this fact. And only the timely advice of a friend who happened to be a marketing expert saved Al's store from disaster.

Another case involves Fred Olsen, the owner of a haberdashery located in a middle-income neighborhood. For quite some time, after he bought the store, he paid attention only to the over-all store income, neglecting to inform himself of the source of that income. Then one day he woke up to the fact that the same ties on a certain rack had been in the store for some little while. Why weren't they selling? Were there, he next wondered, other items in the store which had been gathering dust? He soon found out that the answer was Yes.

SUMMARY

"I wish I could control my business' future." Is that a sentence you've heard (or thought) before? Probably so. After all, you (and every other owner or manager of a small business) want to do better next year than you did this year. To a certain extent, it is possible to control one's business' future. Trouble is, quite a few managers neglect to take those steps which would enable them to do just that.

Yet these steps are entirely within a small firm's reach. This article, in fact, will discuss four such steps: Better Use of Your Money; Better Control over the Product Mix; Better Application of Marketing Information; and Better Measurement of Profits.

These are vital points—and points that are often ignored precisely by those owner-managers who complain that their profits don't increase and their firms don't grow stronger.

Big concerns, of course, have long since realized the significance of more scientific management; and there is no reason why small business cannot capitalize on many of the cost-reducing, profit-producing methods of big business. Naturally, short cuts will be needed, but basically a lot of what big business does, small business, too, can do. This article was prepared through the cooperation of the Small Business Administration.

At your service . . .



Amos Standish, Central and South-eastern states representative for Farm Store Merchandising and Croplife, has experience as a farm equipment dealer and as a representative of a national lumber dealer publication.

When you want to know the ins and outs of selling to farm supply dealers or to the agricultural chemical people, call Amos at Harrison 7-0515 or write to 2832 Board of Trade Bldg., Chicago 1.

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by sight. So, with the help of your memory plus the numbered sales slips, you can make a rough estimate of the total number of different customers who've been patronizing your store. Whatever that total may be—is it high enough? In other words, are you getting your share of the market?

If you think you need it (and can afford it) you might ask a marketing professor in a nearby university to help you find an answer. Or, you might get in touch with your trade association and check their figures for comparable stores in comparable communities.

● Other Marketing Problems. But no matter how you get the answer, once you've got it, you've solved only one marketing problem. Another one concerns your sales force. Is it up to standard? Is everybody performing well? Can you bring those who perform poorly up to average? If you can, you might experience a healthy increase in sales volume.

One company studied the differences between its best salesmen and poorest salesmen, with interesting results. The good salesmen got right down to business. The poor salesmen spent a great deal of time socializing with customers. Closer analysis showed that poor salesmen had very little faith in either the product they sold or the company they represented, and felt that it was necessary to sell themselves in order to sell their products. The good salesmen, confident of their products and company, felt no need to sell their personalities instead of their merchandise.

Compensation of salesmen is another matter worth reviewing. If you have a sales incentive compensation plan, is the incentive too little to be effective? Is it so large that men are inclined to coast at times? If last year's sales increase is built into this year's sales base, are you discouraging your sales force?

Better Measurement of Profits

How do you know how your business is doing? Obviously, the amount of cash flowing in is only a partial—and often deceptive—measurement. So, you need more information. How do you get it?

● Getting the Financial Picture. Obviously, one way to look at the state of your business is by having a look at your sales. Have they increased or decreased over the past year? The answer will tell you something about your business—but not everything. If the sales have gone up, the next question to ask yourself is this: Has the rising sales curve put more money into your pocket? Or, to put it another way, have the increasing sales yielded increasing profits? In some situations, the very reverse may be true. If costs have risen proportionately to sales, or have risen more sharply than the money made from sales, obviously the higher sales figure is no boon to your organization. So, you have to watch both your sales and cost figures.

There are, of course, other elements in the profit-and-costs picture that you have to know and watch for. How much advertising do you use? Does it bring in enough customers to more than pay its way? In some organizations, a good yardstick by which to measure financial success may be to use profits as a percent of advertising. If the products you sell and the type of firm you run demand a steady stream of advertising, this measurement may be for you.

Suppose, however, that you carry the type of stock which represents a risk investment; then your yardstick of efficiency—and success—would be profits as a percent of your average stock investment.

The examples above highlight an important point: There are many measurements of profit. You'll have to find the one which is best suited to your particular type of business, and your business may require a slightly less orthodox measurement than is being used by other organizations. But once you have found the right

measurement, you'll be gaining a better insight into your firm's progress.

Controlling Your Future

To run a business efficiently—and to have some control over its future—you may want to consider adopting some of the steps mentioned in this Aid, if you have not already done so. But, once adopted, they should become part of your business routine.

● Set Your Sights on Tomorrow. What most owner-managers know is this: Each day many—too many—details take up a great deal of their time. For instance, they may have to pacify an unhappy customer, straighten out a misunderstanding with a supplier, worry about the state of their accounts, and train new help. There is little time, they complain, to do any thinking about the over-all condition and the prospects of the firm. Of course, they have a point.

Yet such a long, hard look at your business and its future is essential if you are not to be surprised by unforeseen difficulties. If you want to be certain that your business is operating on a sound basis, it will be necessary for you to take some time out to make an investigation of the four areas outlined above. The hours you spend on that evaluation, may be the most valuable ones you've ever given to your business. After all, you want to be sure that your business not only continues but also continues to grow, and that it yields a higher profit next year, and the year after that. It takes time and effort to make this possible. But it can be done. And if you do it, you will, in effect, be controlling your business' future.

DEALERS' ROLE

(Continued from page 9)

verage of one vacant farmhouse per mile on a 10 mile stretch of highway into Stillwater, Okla.

What has been the role of the dealer in this complex picture? It has been a mixture of self preservation and confusion. Some have unwittingly met the latest price rumors until their creditors closed in. About 14% of the dealer's gross revenue has come from fertilizers, therefore, at most, only 14% of his heart has been devoted to them. Yet modern farmers do not think that the progressive dealer is "on trial." They have indicated that they will make more demands on him in the future because of: (1) Convenience, (2) Economy, (3) Know how, (4) Confidence, (5) Habit and (6) Their own increasingly competitive situations.

The good retail fertilizer merchant has made his case so well with mixer-manufacturers that four out of five now sell him and the fifth is trying. Ralston Purina completed a 5,000,000 ton feed sales year in September through their magnificent dealer organization. Such dealers could sell fertilizers, too.

A good dealer organization should be looked upon by mixers as a substantial, long term investment because it: (1) Multiplies sales, (2) Cuts selling costs, (3) Adds predictability to volume and seasons, (4) Introduces new products or lines, (5) Serves as a barometer of farmers' changing preferences and conditions.

Again, looking backward into history, we see that progress in all trade was necessary but painfully slow. An impatient look ahead assures us that there are many unfinished chapters in fertilizer retailing. It is very likely that our present problems themselves foreshadow a breakthrough into higher ground. Both the feed and grocery business weathered such storms as the fertilizer trade faces and made happy endings for the survivors.

Finally, our crystal ball shows us fewer but bigger dealers for our space age future. Why don't we remove all doubt and start now to make them better—faster?

MISSISSIPPI

(Continued from page 9)

when we were primarily a feed outlet," Mr. Brown said. "But our margin of profit is considerably higher in garden supply sales. Really, I suppose you could say that our increased effort in this field has been our big answer on what to do about direct selling competition."

Mr. Brown reported a lively business in garden seed. Another popular item is tulip bulbs imported from the Netherlands.

The shift in emphasis to garden products in the store does not mean



WAYNE BROWN, manager of Dixie Farm Supply, Marks, Miss., measures garden seed for a customer. Garden supplies have helped in the fight against direct selling.

that Dixie Farm Supply has abandoned completely its interest in the feed business. The store offers a complete line of feeds with hog rations being the major item. The store sells baby chicks and does a good volume in chicken feed. And the sale of dog food is a growing part of the feed business, Mr. Brown says.

Although no regular feed route has been established, the store does offer on-the-farm delivery service for feed and other products. The other products include poultry equipment and traditional lines of light farm supplies.

Credit is something of a problem which Mr. Brown hasn't been able to solve completely. "We try to offer 30 day terms when a farmer needs it," Mr. Brown said. "I suppose that our credit losses are no larger than for other similar businesses in our area. When a customer lets his bill go over we contact him personally a few times. When this fails we take recourse through normal legal channels."

Mr. Brown said that credit traditionally is extended for a full season in the Mississippi Delta and observed that when a farmer has been accustomed to this credit arrangement all his life, it's sometimes difficult to get him to accept shorter credit terms. "Naturally, we'd like to keep everything on a cash basis but all our competitors offer credit and we have to go along to keep our customers," he said.

Dixie Farm Supply limits advertising to the local weekly newspaper. The advertising schedule is built on a seasonal basis so that farm supply lines can be pushed when farmers are buying. The schedule ranges from once a week during the "rush" periods to once a month at the beginning and end of the seasons.

The business has been in operation for 10 years in a well lighted sales room just a few steps off Marks'

main street. The warehouse adjoins the sales room and has a large double door to facilitate movement of products. Garden supply products neatly displayed on shelves line either wall and other island displays dot the sales room floor. Garden seed are located on shelves against the rear wall.

Mr. Brown points out that while direct selling can pose a major problem for a relatively small farm supply business the outlook is not hopeless. By encouraging farmers to grow a new crop and by shifting sales pressure to a line where direct selling is not a threat, Dixie Farm Supply not only weathered the direct selling storm but added new chapters to the firm's history of continued growth.

Program for Beltwide Cotton Conference Announced by Council

MEMPHIS, TENN.—The program for the first Beltwide Cotton Production-Mechanization Conference has been announced. The meeting will take place at the Peabody Hotel here, Jan. 14-15. It was decided last year that the production and mechanization conferences would be combined.

According to the office of public relations, National Cotton Council of America, some of the highlights of the conference include:

● "The Hoe Must Go," by Harris H. Barnes, general farm manager, King & Anderson, Inc., Clarksdale, Miss.

● "Use of Fertilizer to Cut Cotton Production Costs," by Dr. Niven D. Morgan, agronomist, American Potash Institute, Shreveport, La.

● "Promising Chemical Approaches to Cotton Fruiting Control," by Dr. V. T. Walhood, plant physiologist, U.S. Department of Agriculture, Shafter, Cal., and Dr. H. R. Carns, plant physiologist, USDA, Los Angeles.

● "Implications of What We Know About Insect Resistance to Insecticides," by Dr. C. W. Kearns, entomologist, University of Illinois, Urbana.

● "Plans for Comprehensive Research Program on the Boll Weevil," by Dr. E. F. Knipling, director, entomology research division, ARS-USDA, Beltsville, Md.

● "New Developments in Application of Pesticides," by Lambert H. Wilkes, agricultural engineer, Texas Agricultural Experiment Station, College Station, Texas.

● Panel on "Cotton Pest Control and Harvest Aid Guides for 1960," with G. C. Cortright, Jr., cotton producer, Rolling Fork, Miss., acting as leader. Other panel members include Dr. C. D. Ranney, plant pathologist, Delta Branch Experiment Station, Stoneville, Miss.; Dr. Walter K. Porter, Jr., plant physiologist, Louisiana Agricultural Experiment Station, Baton Rouge; Dr. C. R. Jordan, extension entomologist, University of Georgia, Athens; Dr. Wayne C. Hall, head, plant physiology and pathology department, Texas A&M College, College Station, and Tom E. Corley, agricultural engineer, Alabama Agricultural Experiment Station, Auburn.

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FARM SERVICE DATA

EXTENSION SERVICE REPORTS

"Soil test—don't guess," is the advice given farmers by W. R. Thompson, pasture specialist of the Mississippi Agricultural Extension Service.

Soil testing is a foundation job farmers should attend to in planning the next season's farming program. For those farmers outside the Delta lime needs of the soil should be the first consideration, he stated.

"A farmer shouldn't test his soil just to see how little fertilizer he can get by with using," the specialist said. "He should use the soils test to find out how much fertilizer he can use for the most profit."

He also recommended that farmers get the soils samples into the state soils testing laboratory early so that results can be returned in plenty of time for use next spring.

"The soils test will tell which plant foods are needed and how much. It will help prevent using too little or too much of any one plant food element."

Mr. Thompson emphasized the need for fertilization of permanent pastures.

The crop that is most often neglected as far as fertilizer goes is permanent pastures. Pastures cannot produce at their best without plant food.

"Farmers are going to have to learn to fertilize pastures every year

rather than just once in a while," he said.



Agronomists at Virginia Polytechnic Institute have gathered more evidence that proper fertilization of grass-legume mixtures pays off in greater yields.

Experimental plots were established at Orange, Charlotte Court House, and Middleburg to study phosphorus and potash responses under three varying soil conditions.

Two mixtures were studied at each location. One was alfalfa-orchard grass and the other was ladino clover-orchard grass.

Good stands of alfalfa-orchard grass have been maintained for eight to ten years with adequate lime, phosphorus and potash. Ladino clover in an orchard grass mixture failed to survive more than two to four years, regardless of fertilizer treatment.

Method of application affected the efficiency of use of fertilizer by plants grown in Cecil soil. For a given rate of potash, the highest yield was obtained when all was applied after the first cutting of hay. The next highest yield came when half the potash was applied in March and the other half after the first cutting of hay. The lowest yields were obtained when all of the potash was applied in the spring.

The stand of alfalfa was poor where rates of less than 200 lb. of potash were applied per acre. Results indicate that the best fertilizer ratio for alfalfa-orchard grass mixtures on a Cecil soil would be 0-1-3.

Tests on plots at VPI show that a farmer may expect less than one ton of hay per acre per year when no potash is applied. At a rate of 50 lb. per acre, a yield of two tons is normal. With the application of 100 to 200 lb. per acre of potash, a yield

of three to four tons may be expected. In fact, yields increased as potash applications were raised until a rate of 400 lb. per acre was applied. However, this rate is not economical or practical.

Phosphorus at the rate of 50 lb. per acre per year has been adequate to maintain good stands and high yields of an alfalfa-orchard grass mixture. Yields have slowly declined over the 10-year period where phosphorus was not applied.

The scientists found that yields of well-fertilized orchard grass-ladino clover mixtures were less than half as much as well-fertilized alfalfa-orchard grass mixtures.

Herndon slate belt soils found in Piedmont, Virginia, have been generally believed poorly adapted for growing alfalfa. However, yields as high as 4.9 tons per acre were obtained when lime was added at the rate of two tons per acre in addition to fertilization with phosphorus and potash.

At the Tidewater Research Station, Holland, a test was made over a five year period on phosphorus, potash and nitrogen fertilization of a ladino clover-orchard grass mixture. Soil tests indicated a high level of available phosphorus and potash at the start of the experiment in 1953.

Yield responses to all three nutrients were obtained, but the greatest came from nitrogen. Fifty pounds per acre of nitrogen in August was not as effective as nitrogen applied in February or June.

One hundred and fifty pounds of nitrogen in three 50-lb. applications annually produced 1,000 lb. per acre more forage than other treatments. But, considerably more weeds were present under high nitrogen fertilization, especially in the last two cuttings of the forage.



Bankers and other California loaning agencies are equipped to make credit available to qualified growers for their purchase of fertilizers, pesticides, seed, farm equipment and other commodities necessary for crop production, according to the California Fertilizer Assn. These agencies now insist on adequate fertilizer in all crop production loan budgets.

Agricultural area bankers of California were recently supplied with

copies of the booklet "More Profits from Fertile Soils in California" for distribution to their loan officers and farmer customers. This booklet, prepared by the National Plant Food Institute and the California Fertilizer Assn., contains pertinent economic data supplied by the University of California which shows that proper fertilization can raise profits and cut unit production costs.

The booklet quotes an official of the American Bankers Assn., E. T. Savidge, who said: "The increasing use of fertilizer on our nation's farms indicates that farmers have found fertilizer application to be profitable. The use of fertilizers should be a part of an overall crop and soil management program. They cannot take the place of desirable cropping practices, but where fertilizer use is in line with recommendations and approved soil management, most banks will extend credit for fertilizer as they realize that this increases income and assures the repayment of the loan."

The association urges all farmers to discuss their fertilizer requirements with their bankers, which will often make it possible to take advantage of cash discounts. For information as to fertilizer needs, it recommends that bankers and farmers alike consult with their local fertilizer supplier.



Infection of foliage of tomatoes and eggplant by spores of the verticillium wilt organism has been demonstrated in tests carried on by Cornell plant disease specialists at the New York State Experiment Station at Geneva.

This troublesome malady has heretofore been regarded as a soil-borne disease only, which cannot be controlled by spraying. On the basis of the findings of the Cornell scientists it is possible that verticillium wilt spores produced on dead leaves could be dispersed by air and other agencies to susceptible foliage of plants growing in verticillium-free soil and thus establish soil infestations in remote areas much faster and to a greater degree than if the spores settled on bare soil.

"Back in 1945 an unknown defoliation disease of tomatoes developed in the fungicide test plots at the experiment station," say Rosario Providenti and W. T. Schroeder, station plant pathologists, in commenting on their findings in a recent issue of the "Plant Disease Reporter."

"The fungicides reduced the defoliation, some to a greater extent than others," they continue, adding that "while the disease was not identified at the time, the foliage symptoms resembled those of verticillium wilt."

In 1950, the scientists isolated the verticillium wilt organism from similar lesions on leaves of tomato plants growing in a field at Medina, N.Y. Attempts to recover the organism from the roots and stems of these plants, where it is usually found, failed, suggesting that the foliage might be the site of primary infection and that the root system or injured portions of the crown of the plant are not the only sites of infection as has been generally thought in the past. These field observations led to intensive greenhouse experiments with further evidence of foliage infection.

It was also found that from leaf infections the fungus could penetrate the whole plant system, although infected leaves generally drop before the infection spreads into the rest of the plant. Varieties resistant to verticillium wilt react to foliage infection just as they do to root infection, report the station workers. The optimum temperature for foliage infection was also found to be the same as for root infection, namely, 70° F.

At your service . . .



Tall Paul Anderson is advertising sales manager of Farm Store Merchandising. He also represents other Miller publications in the Upper Midwest. Experience with a national hardware dealer magazine gives him a keen insight to the best ways of marketing through farm supply outlets.

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OVER THE COUNTER

(Continued from page 9)

a temporary board of consultants during a major expansion program while a grain bank program was being installed. Included on the board was a university economics professor.

An active board of directors can help the top man in several important ways, such as offering advice on finance, counsel on policy, on personnel and future plans.

Perhaps the two main reasons why a board of directors isn't used more often in a small business are the fear that directors will get control of the company and the owner dislikes being accountable to other people.

Actually, such fears are not justified. If, for example, the top man owns 51% of the common stock, his wife 21%, each of two sons 5% and each of three directors 6%, the directors have little chance of getting control of the firm. Further, directors that are chosen for their integrity, honesty, ability and interest will seldom assume duties that properly belong to the top officer. Majority stockholders can of course vote off the board any "outside" director.

What makes a good director? Business consultants offer some suggestions. The director should have a firm grasp of the problems involved in operating a farm supply business. He

should be familiar with the scope of your business. Another special quality of a director is his ability to teach or coach you. Many able businessmen are poor teachers. The director who can communicate his conclusions to you will help you enlarge your management skills. Another quality to look for is a sincere interest in your firm. Often the "big" man in town is not one who'll take the directorship seriously. Pick one who won't lose interest after the first meeting.

A firm that is contemplating a big change in the financial area would benefit most from directors who have special skill in this field.

Retired bankers and business managers and young, aspiring businessmen often make excellent directors. The top officer might exchange directorships with another successful businessman. Compensation for directors is usually a minor consideration. Some firms pay directors \$10 a meeting but many, of course, pay more. The limit should be at the level where a part time or full time specialist could be hired.

The head of an incorporated farm supply business who is interested in broadening his management and experience base should carefully investigate the advantages of forming a board of directors.



By AL P. NELSON

The day was grey and cold. Farmers wore heavy coats and some wore canvas gloves. The wind brought red cheeks and runny noses, and when farmers came into the Schoenfeld & McGillicuddy farm supplies store, they would say something like this in case Tillie happened to be at the bank or in the warehouse:

"Gee, this is the kind of weather it's heck to be a farmer. Much nicer to sit in here on your bump like a fertilizer dealer soaking up the oil heat and figuring up profits."

To which Oscar would respond with an angry glare, while Pat would say with a smile: "Yes sir, and with the cost of living going up every day we can spend every cent we make just to get a decent meal. Must be nice to be a farmer and have all the eggs, meat, frozen and canned foods you want to eat and lots of milk to drink."

And that would make some farmers smile, and one might remark, "Well, we ain't rich, but we eat anyway, thank heavens."

After this sort of kidding had been going on all day between farmers and Pat, Oscar was fit to be tied from irritation. He did not believe in such talk. He liked to call a "schpade a schpade," with no fooling, and let the dirt fall where it might.

About three o'clock that day the salesroom was empty of kidding farmers, and Oscar felt that a little peace had descended at last upon the store and took a keener delight in working on the discounts. The only irritating factor from Oscar's viewpoint was that Pat sat with his feet on his desk, thumbing through various trade and other magazines. If McGillicuddy wanted to read magazines, Oscar often told Minnie, why didn't he take them home and read them at night on his own time? Oscar, with usual frankness had also told this point of view to McGillicuddy at least once a week for the last eight years, which was as long as they had owned this business as partners.

Pat whistled suddenly. "Oscar, it's a cold day, and Christmas is past. We should start thinking about what we are going to give our good customers for the New Year."

"We will gif them statements on the money they owe us!" Oscar snapped practically. "They can pay us. That will be a present for us!"

Pat pushed the criticism aside. "Oh, Oscar, remember we are the sellers. We must cultivate the customer. We must gain his good will. This time of year is an excellent opportunity for us to show our gratitude for the business they have given us during the year. Lots of wise business firms do this."

"I am not in this business to gif money away!" Oscar thundered. "I am here to make money. Ach, if you want something to do, take this list of bad accounts and go out and collect it. Get tough with some of those dumbkops!"

"Oscar, customers are never dumbkops. They are supposed to be kings when they are in your store, and should be treated as such. All good books on merchandising say as much."

"Yah," growled Oscar. "You readt your books and I readt mine. I got this one." He held up a thick red booklet which was headed, "The Causes of U.S. Depressions from 1776 to 1959!" Then he grabbed another booklet, "Why So Many Business

OSCAR & PAT

Men Go Bankrupt—Poor Management!" "Ach, these are the books to readt, Irisher. If you would read them you would get sick, you and your sellink books!"

"I never knew two people could be so different, Oscar," Pat said speculatively, "until I got into business with you and got to know you so well. You are the kind of businessman who operated from 1900 to 1920; conservative, never taking a chance, getting along with an old dingy store, saving string, paper clips and what not. Turning out lights, expecting cash for every purchase. I'm the other kind, the 1950 business man, desiring to capture the market potential and willing to spend a little money to get more money."

"Yah, well I got it and you ain't!"

Oscar said ruthlessly. "Which would you rather be? I know. I want to be me. I like money in the bank—lots of it."

"Well, I won't have to worry about somebody else spending all my monney when I die, Oscar, but think of the worry you'll have. On these presents, an article in an advertising magazine gives some interesting ideas for gifts."

"I don't want to hear it," Oscar growled, his back toward Pat.

"Suppose," Pat ruminated, "we divide our customers into three categories. The first would be those who spend \$1,000 a year or more with us. The second would be those who spend \$500 and up to \$1,000. The third category would be those who spend between \$250 and up to \$500. Each could get a gift from us in relation to what he spent with us. The man

who spent \$1,000 would get a better gift than the one who spent only \$250—but each would get a gift."

Oscar pounded the desk with his fist. "Don't gif away nottink, McGillicuddy. Get somethink in that they owe us. Himmel, have you no common sense?"

"Don't you read the Bible, Oscar?" chided Pat. "If you wish to receive, give first. Golly this article in the advertising magazine has some good gift suggestions. Listen to this: high quality cosmetics for the lady of the house; an assortment of exotic foods; potted plants for the dinner table; table lamps; a box of fine fruit; tools; framed pictures; kitchen clocks and lots of other items."

Oscar swung around in his swivel chair. "McGillicuddy, who do you think you are—the government, that you want to spend like that?" he belled, his face livid.

"Well, it's not so foolish as you think, Oscar. At this time many farmers will be thinking about booking spring fertilizer requirements. If we send a nice gift to a \$1,000 customer, it may make him think of us and give us his spring business. In that case it would be good advertising."

Books on Fertilizers And Their Use

FUNDAMENTALS OF SOIL SCIENCE—Third Edition

By C. E. Millar, late Professor Emeritus of Soil Science; L. M. Turk, director; and H. D. Foth, associate professor of soil science, Michigan State University.

This text completely revises and brings up to date the second edition. Special attention is given to progress made in the basic principles of soil science since the publication of its predecessor. This edition includes more emphasis on soil texture and the concept of the texture profile, more discussion of the influence of the soil forming factors on soil development, and more facts about clay minerals to provide a clearer understanding of the differences in the behavior of soils. 476 pages, illustrated. 6x7½". \$7.75

SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following background course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. Dr. Tisdale is Southeastern regional director of the National Plant Food Institute and Dr. Nelson is with the American Potash Institute. 430 pages, cloth bound. \$7.75

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners, providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of pre-harvest fruit drop, deterring foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages. \$6.50

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms, or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, border vegetables, and cane and tree fruits. Covers plant feeding, or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 380 pages of text and illustrations including 37 pages in full color. \$3.00

AUXINS AND PLANT GROWTH

A. Carl Leopold

A 366-page book, complete with bibliography, appendix, and index, discusses the fundamental and applied aspects of growth hormones and synthetic auxin action in plants. These are of interest to all workers in agricultural chemicals—for weed control, flowering control, fruit set, flower or fruit drop and plant propagation. The text is divided into two sections, (1) fundamentals of auxin action, and (2) auxins in agriculture. These cover developmental effects of auxins, the physiological and anatomical effects of their application, the chemical nature of growth regulators, and methods of applying auxins and their persistence in plants and soils. Other subjects covered: rooting, parthenocarpy, flower and fruit thinning, control of pre-harvest fruit drop, flowering, dormancy and storage, herbicides, miscellaneous uses of auxins, and potentials of auxins and auxin research. \$5.00

ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful \$1.95 answers to problems of practical application.

HUNGER SIGNS IN CROPS—Second Edition

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USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist for California Spray-Chemical Corp., Richmond, Cal. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trace-element plant foods. 208 pages, 106 illustrations, cloth bound. \$4.00

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbert H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages. \$9.50

APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)

M. H. McVickar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, Illustrated. \$3.00

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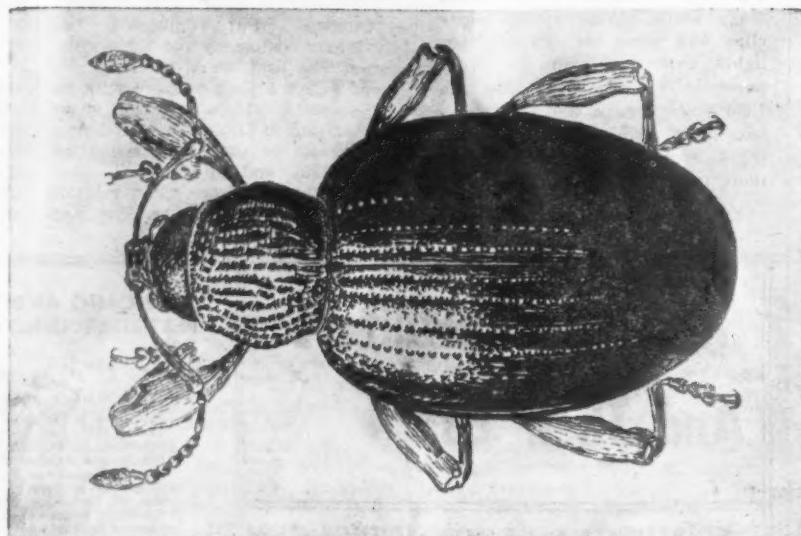
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BUG OF THE WEEK

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Strawberry Weevil

How to Identify

The adult weevil, illustrated above, is described as being reddish-brown in color, measuring from $1/12$ inch to $\frac{1}{8}$ inch in length. Young grubs of the species are soft-bodied, white and legless. They remain in this stage for about 4 weeks before entering the pupal stage.

Habits of the Strawberry Weevil

Adults are active during the early part of the summer, feeding until about mid-summer, then going into hibernation, sheltered under trash, where they remain for the rest of the summer, fall and winter months. Emergence from this stage is in the spring. The female weevil makes a puncture in the strawberry bud and inserts an egg. The young grubs that hatch within the bud feed on it and stay on through their pupal stage, emerging as adults.

Damage Done by Weevil

As described, the strawberry buds are killed through the egg-laying of the adult beetle and the feeding of the young within the bud. Infested strawberry plants are characterized by killed buds and fruit hanging on partly-severed stems. In addition to strawberries, the pest attacks wild blackberries, raspberries, and dewberries. Its distribution is in the eastern part of the U.S.

Control of Strawberry Weevil

A number of insecticides, both old and new, have been recommended in various states for control of this pest. In view of the possibility of residues remaining on the berries, extra caution should be taken in applying any toxicant. State experiment station entomologists and county agents should be consulted for local recommendations.

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Proper Fertilizer Recommendations Urged At Arkansas Plant Food Society Meeting

LITTLE ROCK, ARK.—Fertilizer industry representatives attending the ninth annual Arkansas Plant Food Conference here Dec. 10-11 were warned against encouraging farmers to apply excess amounts of fertilizer on certain crops and soils.

The warning was implied in a speech by Richard Maples, an assistant agronomist at the Arkansas Agricultural Experiment Station at Marianna, who told of experiments involving cotton and nitrogen.

Mr. Maples said tests covering a four-year period showed that the moderate use of nitrogen in sandy and silt loam soils produced better cotton than when too much nitrogen was applied.

Woody M. Miley, an extension soils specialist for the University of Arkansas, said a big problem confronting agricultural workers is to advise farmers to use fertilizers properly—not too much and not too little.

More than 90 representatives of the fertilizer industry and about 30 officials from the U.S. Department of Agriculture and the University of Arkansas attended the meeting.

Mr. Maples said experiments he conducted with Dr. Joseph L. Koegh, another assistant agronomist at the Marianna station, showed that 60 to 90 lb. of nitrogen produced more cotton than heavier amounts of the fertilizer.

The nitrogen, Mr. Maples reported, was balanced with required amounts of phosphate and potash in the sandy and silt loam soils of the Mississippi Delta.

"The top yield was about two bales an acre," he said. He added that this was about as much cotton as the land would produce under climate, variety and environmental conditions.

Mr. Miley said that it has been common for fertilizer salesmen to urge farmers to use up to 150 lb. of nitrogen an acre for cotton. He said, however, that the practice worked in dry years.

Mr. Maples said he and Dr. Koegh attempted to use excessive amounts of nitrogen, but that the fertilizer produced undesirable crops. He said the cotton stalks grew too large, making them more likely to get boll rot and contributing to an over-all poor boll formation.

The net effect, the researchers reported, was lower yields.

Experiments showed that the application of excessive amounts of nitrogen apparently did not hurt cotton being grown in heavy clay or gumbo soils.

"But it didn't help much, either," Mr. Maples said.

He also reported on experiments involving phosphate and potash, saying the addition of phosphate on soils where it is in short supply would make cotton mature earlier, and that potash is needed in some areas to maintain high yields.

Mr. Miley told the conference that Arkansas farmers are concerned with nitrogen because it is needed to produce good crops in most sections of the state.

"It's an accident of geography," he added.

The extension expert said hot temperatures and dry weather combine to burn out the nitrogen-producing organic matter in the state's soils.

It usually requires 81 lb. of nitrogen, 27 lb. of phosphate and 44 lb. of potash to produce a bale of cotton on an acre of land in Arkansas, Mr. Miley said.

The use of fertilizer on cotton was the big topic at the conference because cotton is the leading crop in the state.

Even though there was talk of farmers using too much fertilizer, L. A. Dhomau, sales manager of the

Arkansas Plant Food Co. at North Little Rock, said it is still a hard problem to encourage the all-around use of fertilizers.

He said: "Fertilizer consumption in Arkansas is way below the amounts recommended by the extension service as the most economical for the highest return."

Dr. D. A. Brown, associate agronomist for the Agricultural Experiment Station at Fayetteville, agreed with Mr. Dhomau. Dr. Brown said it is difficult to persuade farmers to use lime. He told the conference that in 1958 Arkansas farmers put about one-tenth as much lime on the land as was needed.

Dr. Brown said it was hard to sell farmers on lime "because acidity builds up slowly in the soil."

A Magnolia lime dealer, Robert Henderson, Jr., said fertilizer salesmen need to promote lime more in the future than they have in the past.

He added: "Encouraging farmers to have their soil tested by the university helps convince them of the need for more lime."

Dr. J. P. Wells, assistant agronomist at Fayetteville, reported that the heavy use of nitrogen pushed rice yields to more than 100 bu. per acre in the Stuttgart area. He said researchers used the Nato variety.

Southern Weed Meeting Program Plans Told

MEMPHIS, TENN.—The program for the 13th Annual Southern Weed Conference scheduled for Jan. 20-22 at the Buena Vista Hotel in Biloxi, Miss., has been announced by Dr. D. E. Davis, program committee chairman.

Various phases of research and education pertaining to chemical weed control will be discussed by some of the nation's top authorities during the three-day meeting. President and general chairman is V. S. Searcy, department of agronomy and soils, Auburn University, Auburn, Ala.

Related subjects have been grouped together and will be discussed in sectional session. Sectional topics include control of woody plants, weed control in crops, extension aspects of weed control, fundamental research and herbicidal activity, weed control in horticultural crops, and control of special weeds.



"HIGH DISC LOADING" is the aeronautical term to describe how and why the Hiller 12 E helicopter pictured here gives coverage and control in agricultural spraying. With 305 horsepower, the Hiller can carry up to 140 gal. of spray per dispensing flight. The craft can operate from the edge of the field, anywhere the mix truck can go.

TO REDUCE FERTILIZER USE?



LAMESA, TEXAS—The battle between cotton farmers and the government over skip-row planting may seriously curtail the use of fertilizer, according to area farmers.

Heretofore most farmers, particularly on dryland, planted four rows and skipped four, with only the four planted rows to count on acreage allotments. Now that this plan is banned, the amount of moisture will be reduced. With so many dry years to be reckoned with in the southwest, most farmers will aim for a smaller stalk.

"Now that we must plant every row, we can't shoot for those high yields," said one of the county's leading farmers. "We can't grow the big stalks, and we won't have enough moisture to utilize fertilizer. Personally I'll probably cut my fertilizer application."

The ruling will not affect irrigation farmers so much, since most of them plant their cotton fields solidly. They do this so that water will be confined to a smaller area, and thus reduce irrigation expense.

Illinois Company to Produce Liquid Fertilizer

CEDAR RAPIDS, IOWA—The Iroquois Service Co., Watseka, Ill., has completed plans for the production of complete analysis neutral solution liquid fertilizers. Equipment to be installed will also include facilities for conversion of anhydrous to aqua ammonia.

Engineering of this complete liquid fertilizer production plant—as well as the production equipment involved—is by the chemical plants division of Barnard & Leas Mfg. Co., Inc., Cedar Rapids.

Hercules Official Retires

WILMINGTON, DEL.—Ernest S. Wilson will retire Dec. 31 as director of engineering for Hercules Powder Co., upon completion of 36 years' service with the company. He has been director of engineering for the last 12 years, and a member of the board of directors for five years. Mr. Wilson headed the Hercules engineering department at the time of the company's greatest expansion, after World War II.

Dutch Elm Disease Well Established In Southern Wisconsin

MADISON, WIS.—Dutch elm disease has now become well established in the southeastern part of Wisconsin, according to E. L. Chambers, state entomologist and coordinator of Dutch Elm Disease Control Program. Mr. Chambers based his conclusions on the fact that the disease is now known to have occurred in 15 counties and 152 communities. Last year it was found in 10 counties and 106 communities.

The total number of confirmed cases last year was 1,832. This year, the number is 3,561, or almost double that of 1958. There are also perhaps hundreds of unreported and unconfirmed cases in rural areas, Mr. Chambers said.

With many communities practicing control measures, this increase in 1959 may seem a little discouraging, Mr. Chambers said. The control of Dutch elm disease consists of two operations: Sanitation, the removal and destruction of all confirmed cases and of weak and dead elm trees and wood; and the application of dormant spray.

Both of these measures must be thorough and complete for satisfactory control. Removing only part of the elm wood, while reducing the hazard does not eliminate it. Partially spraying some of the elms in a community cannot protect all of the elms in that community.

Some "sprayed" trees became infected this year, Mr. Chambers stated, but most cases of Dutch elm disease occurred in non-sprayed trees. This, he says, is extremely encouraging. The reason some sprayed trees became infected may be attributed to several possibilities; incomplete spray coverage, deterioration of spray or infection through root grafts.

In cities that applied a dormant spray for control of the disease, records show a lower rate of infection among the sprayed trees than among those not sprayed. Control measures do reduce infection and the increase in the disease this year was largely in trees not protected either by spraying or by sanitation.

Records of the Milwaukee County Park Commission substantiate this view. They were able, for the most part, to apply a dormant spray only to elms in picnic areas, parkways, golf courses and highly valued specimens. Only a few of those sprayed became infected.

Of the 100,000 elms surveyed by the Milwaukee County Park Commission, 130 cases of Dutch elm disease were found. These were in areas not sprayed for one reason or another—hedge rows, stream bottoms, inaccessibility or recently acquired lands.

The city of Janesville has sprayed its 11,000 street trees for the past three years. In 1959, 64 cases of Dutch elm disease occurred in these, and 186 cases in the 6,000 non-sprayed or private trees. It is evident that the increase in the disease here as elsewhere, was largely in areas where little or nothing was done to control it.

This, plant pathologists state, is the story of the Dutch elm disease control programs everywhere. In every case where the control programs seem to fail, investigation reveals the cause to be half-hearted efforts, incomplete work or inadequate spray coverage.

In every case where thorough sanitation and conscientious spray work has been done, losses of elms to the disease have been held to one or two per cent. This is the average normal loss due to wind and other diseases.

SALES IN ARKANSAS

LITTLE ROCK, ARK.—Sales of fertilizer in Arkansas during November amounted to 3,019 tons or about 1,000 tons less than sales during November, 1958, reported the Arkansas State Plant Board. Most popular grade was 10-20-10, with 543 tons sold and most popular material was ammonium nitrate, with 466 tons sold.

Program Set for Southern Liquid Fertilizer Conference

ATHENS, GA.—A Southern Regional Liquid Fertilizer Conference will be held at the Rock Eagle 4-H Club Center, Eatonton, Ga., 45 miles south of Athens, Feb. 9-11.

According to J. R. Johnson and P. J. Bergeaux, extension agronomists, University of Georgia College of Agriculture, the conference is primarily directed to the research and educational aspects of liquid fertilizer. However, industry representatives of fertilizers and manufacturers of distribution and application equipment are being invited and are participating on the program.

George Scarseth, American Farm Research Assn., Lafayette, Ind., will be the principal speaker at the banquet the evening of Feb. 10. Other speakers on Feb. 10 and their topics will include:

Welcome, C. C. Murray, dean and coordinator, College of Agriculture, University of Georgia; "Soil Fertility Problems of the South," E. T. York, director, Agricultural Extension Service, Auburn University; "Status of Liquid Fertilizer," A. V. Slack, Tennessee Valley Authority; "Comparative Agronomic Value of Liquid Fertilizers," Tom Cope, agronomist, Auburn University; "Methods of Application of Liquid Fertilizers," Gordon Futral, agricultural engineer, Georgia Experiment Station; "Economic Considerations of the Use of Liquid Fertilizer in the South," Roger Woodworth, agricultural economist, University of Georgia; "Sources of Materials for Formulating Fertilizer Ratios Applicable to the South," Ernest M. Harper, Alyco Fertilizer Co., Sullivan, Ill.; "Problems Involved in Adding Secondary Elements, Trace Elements and Pesticides," A. V. Slack, TVA; "Corrosion Problems Involved in Liquid Fertilizer," W. W. Arnold, Nitrogen Division, Allied Chemical Corp.; "Comparative Costs in Producing Liquid and Solid Fertilizers," Harold Walkup, economist, TVA; "The Establishment and Operation of Liquid Fertilizer Plants," Hixen Guest, owner, Liquid Fertilizer Plant, Oglethorpe, Ga.; "Equipment Needed for Handling, Delivery, and Storage of Liquid Fertilizer," Morris Wooley, Western Kentucky Liquid Fertilizer Co.; "Custom Application vs. Farmer Application," Ralph Sasser, assistant county agent, Duplin County, North Carolina.

Several group meetings are scheduled for Feb. 11. They include:

"The Uses of Liquid Fertilizers on Farms," moderator, S. G. Chandler, chairman, extension training, Georgia Agricultural Extension Service; "Research Underway and Needed," moderator, J. W. Fitts, head, department of agronomy, North Carolina State College; "Production, Distribution, and Sale of Liquid Fertilizers," moderator, Ralph McKnight, chief, test-demonstration branch, TVA; "Educational Problems in Connection with the Use of Liquid Fertilizers," panel discussion, W. W. Lewis, moderator, extension agronomist, Virginia Polytechnic Institute, Emerson Collins, extension agronomist, North Carolina State College, J. R. Johnson, extension agronomist, University of Georgia, W. E. Hunter, county agent, Macon County, Georgia; summary, "The Future of Liquid Fertilizers in the Southeast," J. Fielding Reed, southern manager, American Potash Institute.

Demonstration and inspection of equipment used with liquid fertilizers is scheduled for the afternoon of Feb. 11.

OLD FIRM MOVES

LEXINGTON, KY.—The C. S. Brent Seed Co. has moved to a new location at 917 West High St., where they will have off-street parking as well as a railroad siding. The company had been located at Broadway and Vine Streets for 87 years.

Tennessee Weevil Count Found High This Fall

KNOXVILLE, TENN.—An unusually large number of boll weevils were found in McNairy County, Tenn., in the annual fall survey. According to R. P. Mullett, entomologist and plant pathologist at the University of Tennessee, this county was selected for the survey because it usually represents the heaviest weevil infestations.

The survey revealed an average of 1,882 weevils an acre going into hibernation; the greatest number since 1957 when the average was 2,365 weevils an acre. Mr. Mullett pointed out, however, that weather conditions could reduce this number considerably before spring. He said that counts will be made in the same fields prior to planting time to get the percent of carry-over and a basis for estimating the 1960 level of infestation.

Close observations have been made

on weevil migration to the northern counties this fall. After the first of November a relatively large number of weevils could be found as far north as Lake County. Usually these weevils never survive the winter but it is possible that with a mild winter some of these could be around to infest fields in this area next spring.

The highest number of live weevils found in any one sample was 4,840. The average number of live weevils per acre was 1,882.

Mississippi Farmers Plan for 1960 Crops

STATE COLLEGE, MISS.—With harvesting almost completed, farmers are turning their attention to getting soil ready for next year, said county agents of the Agricultural Extension Service.

Much interest is being shown in soil sampling and liming soil. Tree

planting is getting underway.

Pike County landowners have ordered a million pine seedlings for planting this winter, reported George Mullendore, county agent at Magnolia.

A county-wide soil fertility program based on soils testing is gaining in participation and interest, the agent said. Nearly all crops are harvested. Most winter oats are being grazed.

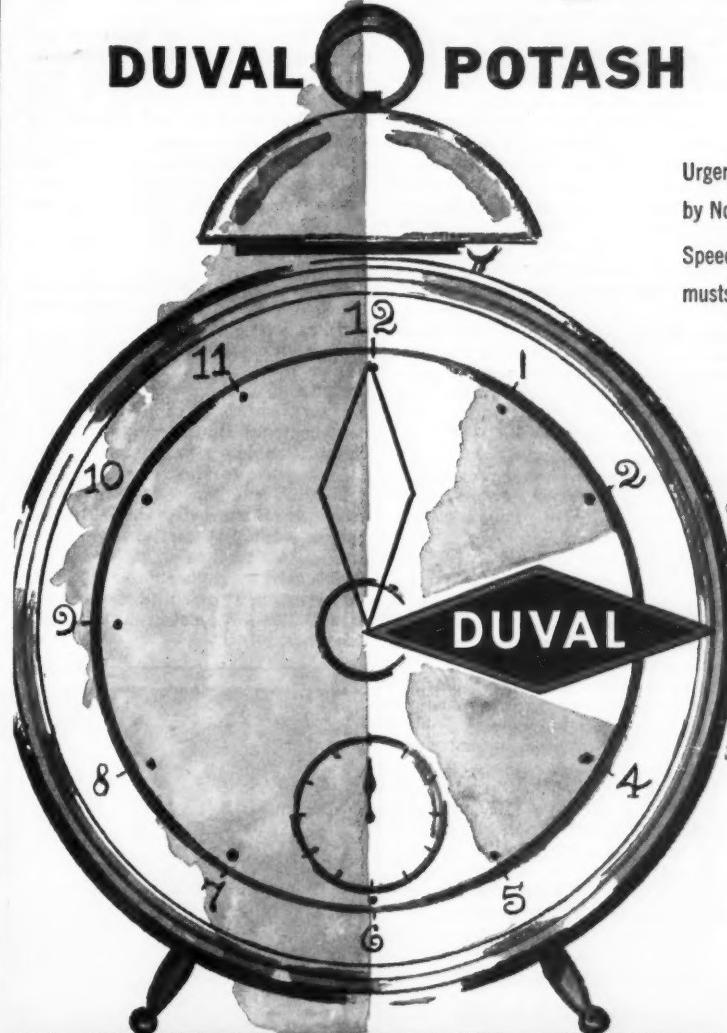
Plant lice are damaging oats in Marion County, according to D. O. Scott, county agent at Columbia. He urged that farmers keep a close watch for these pests and when found either graze the oats off or poison.

"The bad part of poisoning," he said, "is that you must wait at least 14 days after poisoning before turning cattle back on the fields."

In Attala County more lime is being applied to the soil than in the past year, said J. F. Buchanan, county agent at Kosciusko.

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MICHIGAN

(Continued from page 1)

spoil banks created by strip mining or similar activities.

It is in these locales, Dr. White emphasized, where research has demonstrated a reaction and sometimes marked growth stimulation to applications of fertilizer materials. One outstanding response, that of Monterey pine to zinc in Australia and New Zealand, is an example of an acute trace element deficiency, he said.

The speaker explained that we also have vast areas of forests which have never been entirely denuded of tree growth, although they may have been badly managed so that the present production of usable products is only a fraction of the soil productivity potential.

These lands, he said, which include most of our farm woodlots and larger areas of second growth timber in the Northeast, the Lake States and in the South, are a serious problem in the forest resource picture. However, he added, the problem is that of increasing the quality and nature of the growing stock—the forest capital, rather than of improving or restoring the soil fertility.

The problem of where to direct our efforts was also discussed by Dr. White, who pointed out that reforestation is intimately associated with forestry in the eyes of the public. In fact, he said, the two words are unfortunately considered to be synonyms.

"Nevertheless," he explained, "tree planting is an important forestry activity and we shall continue to plant millions of acres of trees each year."

The speaker revealed that in Michigan, nurseries are annually producing nearly 100 million trees, and in Georgia, over 300 million seedlings are

grown each season. By and large, he said, these trees, mostly conifers, will be planted on abandoned farm land or other areas too low in fertility for farm crops.

Dr. White also told the conference that this reforestation effort is not limited to the United States. This pattern is repeated to a significant extent in Ontario, Canada; Spain and other southern European countries, and reports from China indicate that the magnitude of their reforestation program dwarfs our own effort by at least tenfold.

Past investigations have shown, he said, that most of the reforestation species, except Scotch and jack pine, will make a significant response to fertilization with N-P-K fertilizers on low fertility sites. In some cases, he added, N or K alone will be beneficial. Response is dependent on the use of the proper materials and in sufficient quantity and applied at the right time, he stressed. Southern pines have also responded to phosphorus as well as nitrogen fertilizer, he said.

"To date," Dr. White maintained, "the only long-term response in the United States in terms of wood fiber production has been a reaction reported on potash deficient soils in New York and the St. Lawrence Valley.

"Most of the other experiments," he said, "particularly with nitrogen, have shown an early stimulation, especially with respect to foliage production followed by a rapid decline in the second and third years after treatment."

Dr. White revealed that a report just released showed a highly significant diameter increase of slash pine to nitrogen applications. The effects of 100 lb. an acre of nitrogen produced a 10% increase in diameter over a five-year period, he said. What the results of a maintenance of high nitrogen levels by repeated applications might achieve in terms of fiber production will not be known until the results of several long-term studies now in progress can be evaluated, he cautioned.

Dr. White stressed that what has been said applies specifically to conifers, but that there are some plantations of hardwoods—maple, ash, tulip poplar, walnut, hybrid poplar and others—being established. He explained that these species are more demanding than conifers as far as soil fertility is concerned, but that they are potentially more valuable and would yield a greater economic return than some of our other reforestation species if they could be grown successfully.

By and large, the speaker explained, hardwood plantations have not been particularly successful. Cultivation is often required for some years, he said, and recent experiments have shown a marked response to fertilizers applied at planting time and repeated at intervals.

In discussing fertilization of new plantings, Dr. White pointed out that many new plantings are lost or severely retarded because of poor survival and failure to overcome weed competition on old field sites. A number of experiments have shown that small amounts of fertilizer properly placed will materially improve growth and survival of new plantings, he said.

He revealed that one company has marketed a nine-gram tree pellet. The objective, he declared, is to provide a lasting supply of nutrients for the young trees without injury or excessive stimulation of weed growth. Materials under investigation include urea, ureaform nitrogen, fritted potash, potassium metaphosphate, and magnesium ammonium phosphate. Fertilization in combination with new herbicides shows enough promise to be recommended in practice with such species as spruce and Douglas fir.

Broadcast applications of fertilizer on new plantings are not desirable,

he said, because of excessive weed stimulation. Placing the material in a ring or band around each tree is effective, but requires hand methods which are somewhat laborious. Concentration of materials in excess of two ounces of complete fertilizer per tree can be injurious, and some reduction in survival has been obtained at even this low rate.

Dr. White, in discussing fertilizer for Christmas trees, said that although the economics of fertilization of forest plantations is still in some doubt, at least under average American forestry conditions—the unique short term rotation of the Christmas tree crop makes the use of fertilizers a logical management practice under certain conditions.

The speaker explained that the Christmas tree grower is usually interested in good foliage color and longer retention of needles. Applications, he said, of one half to one pound of a complete fertilizer, like 12-12-12, made in the spring of the harvest year or preferably the previous spring, can improve the quality and market value of Christmas trees by as much as 100%.

There may be certain situations where single nutrients, like nitrogen or potash, on humus deficient soils may be all that is required for satisfactory color improvement, Dr. White stated. However, he pointed out, lacking specific information on single element deficiencies, it is generally considered good practice to apply a complete formulation. This will run the cost up somewhat, but the increased value of the crop relative to the insignificant cost to the fertilizer justifies this more or less "shot gun" type of treatment.

Dr. White explained that soil and tissue tests, either alone or in combination, are used by agronomists to evaluate the fertilizer needs of most crops. Soil tests are not particularly helpful in diagnosing the nutrient needs of forest trees, he said, but tissue testing seems to offer a more productive approach. Visual symptoms also offer a practical approach for appraising nutrient levels of trees, he added.

In discussing application techniques, Dr. White explained that most forest fertilization experiments and plots have been established by hand methods or the use of a small hand operated fan-type broadcast equipment. For fertilization at time of plantation establishment, the opportunity for mechanization looks promising.

In looking to the future, said Dr. White, we can see a continuation of research efforts to establish the economics of forest fertilization to increase fiber production, pulpwood volumes, sawlogs, and similar products. However, he stressed, practice is still ahead of us—at least in the American economy.

Horticultural Group Votes Weed Resolution

SALISBURY, MD.—A resolution spurred by the weed killer-cranberry scare was passed at the two-day 73rd annual meeting of the Peninsula Horticultural Society in Elks Hall here Dec. 8-9.

The more than 125 fruit and vegetable farmers and processors, who attended the sessions, ordered their secretary to ask the departments of entomology and pathology at the Universities of Delaware and Maryland and the Virginia Truck Experiment Station to meet at least annually and coordinate recommendations on the use of insecticides, fungicides and weed killers.

They also asked for increased research on natural insect controls such as birds.

The society members asked the universities to help industry and government regulatory agencies in preparing easily-understood labels on use of agricultural chemicals. They called for an educational program to help farmers use the poisons properly and know the penalties if they ignore the labels, and also that the secretary of agriculture spur development of improved and faster methods of testing crops for chemical residue.

The group elected as president, Frederick W. Haas, Middletown, Del., who succeeds Richard M. Allen, Salisbury, Md.

Other officers elected were: George Kemp of Princess Anne, Md., vice president; Herbert A. Richardson of Wyoming, Del., reelected treasurer; Robert F. Stevens of Newark, Del., secretary; Edward H. Ralph of Georgetown, reelected assistant secretary, and Francis C. Stark of College Park, Md., reelected editor.

The new executive committee members are Richard M. Allen of Salisbury, Robert W. Rider of Bridgeville, Del., E. M. Abbott, Jr., of Laurel, Del., and Otho H. Wilkerson of New Church, Va.

Central Farmers Fertilizer Closes for Winter Months

GEORGETOWN, IDAHO—Central Farmers Fertilizer Co. has completed closure of its Georgetown plant for the winter months except for a skeleton crew of about 60 men.

The firm has completed a contract fulfillment of more than 650,000 tons, Robert Sacriston, superintendent of the Wells Fargo Corp. disclosed. He is in charge of raw materials production.

The skeleton crew will continue stripping operations at the mine on next year's deposits. The plant employs about 160 men under full operating conditions.



SOUTHERN SEEDMEN — Members of the Southern Seedmen's Assn. held their 41st annual convention in Miami Beach early in December. Shown above, left to right, are: Edgar Martin, E. A. Martin Seed Co., Jacksonville, Fla., retiring president; Cliff Hill, Johnson Seed Co., Enid, Okla., new president; DeWitt Norwood, Barnwell Peanut Co., Barnwell, S.C., first vice president; and Francis Branan, Florida Seed and Feed Co., Ocala, Fla., second vice president. The meeting program included an 11-member panel which participated in an all-day workshop on retail problems. Forty seven exhibitors were in the trade show.

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PATENTS and TRADEMARKS

2,913,369

Fungicide. Patent issued Nov. 17, 1959, to John H. Haslam, Landenberg, Pa., assignor to E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. A fungicidal composition comprising an inert carrier and as the active ingredient a polymeric group IV-A metal compound in which the polymeric chain is formed by repeating



groups, where M is selected from the group consisting of Ti and Zr, said



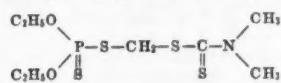
groups having the following chemical groups connected to the metal atom: 0.1 to 1.9 acylate groups per metal atom, said acylate groups being derived from a monocarboxylic acid having from 4 to 24 carbon atoms; 0.1 to 1.9 halogenated aromatic radicals selected from the group consisting of halophenoxy, halonaphthoxy, and halogenated benzyloxy radicals; the residue of the molecule of said group IV-A metal compound being radicals selected from the group consisting of alkoxy radicals containing from 1 to 8 carbon atoms, hydroxyl radicals, and both of these radicals connected directly to the metal atom.

2,913,370

Method of Inhibiting Growth of Plant Viruses. Patent issued Nov. 17, 1959, to Van R. Gaertner and George A. Richardson, Dayton, Ohio, assignors to Monsanto Chemical Co., St. Louis, Mo. The method of inhibiting the growth of plant viruses comprising contacting living plants with an effective virus-inhibiting concentration of an N-(S-aryldithiocarboxy)-amino acid, wherein the aryl radical is a lower aryl radical containing less than about 15 carbon atoms and in which the amino group of the amino acid is attached to a carbon atom which is adjacent to a carbonyl group and said carbon atom is selected from the group consisting of asymmetric carbon atoms and tertiary carbon atoms.

2,915,429

O,O-Diethyl-Dithiophosphoric Acid-S-(Dimethyl-Thiocarbamyl - Mercaptomethyl)-Ester Insecticides. Patent issued Dec. 1, 1959, to Otto Scherer and Helmut Hahn, Frankfurt am Main, Germany, assignors to Farbwirke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany. Method of combating insects which comprises applying to them a composition comprising, as an essential active ingredient, a compound of the formula:



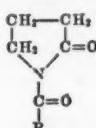
2,913,371

Fumigant Composition and Method. Patent issued Nov. 17, 1959, to Clayton Peters, Sheridan, Mich., assignor to the Dow Chemical Co., Midland, Mich. A fumigant composition which comprises a mixture of from about 70 to 90% by weight of carbon tetrachloride and from about 10 to 30% by weight of carbon disulfide as a major toxic ingredient and as a minor ingredient from about 0.25 to about 4% by weight of methyl bromide.

2,915,430

Method of Controlling Nematodes with N-Acylpyrrolidones. Patent issued Dec. 1, 1959, to David Taber,

Easton, Pa., assignor to General Aline & Film Corp., New York. The process of eradicating and controlling soil nematodes which comprises applying into the soil in the vicinity of said nematodes a nematocidal amount of an N-acylpyrrolidone having the following general formula:



wherein R represents a member selected from the class consisting of alkyl groups of 1 to 17 carbon atoms, phenyl and furyl groups.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Design, drawing with words Red Panther attached, for insecticides. Filed June 11, 1951, by Coahoma Chemical Co., Inc., Clarksdale, Miss. First use on or about April 14, 1950.

Bloomaster, in capital letters, for plant food. Filed May 4, 1959, by Wilson & Toomer Fertilizer Co., Jacksonville, Fla. First use Feb. 6, 1958.

Liquidife, in capital letters, for liquid plant food. Filed June 5, 1959, by Maczuk, Inc., New Haven, Mo. First use May 30, 1958.

Valliant, in hand drawn letters, for fertilizers. Filed July 8, 1959, by Valliant Fertilizer Co., Laurel, Del. First use March 1, 1937.

Design, drawing of globe with word Hemisferio inscribed, for fertilizer. Filed July 30, 1959, by Hemisphere International Corp., New Orleans, La. First use Feb. 17, 1959.



John W. Hall

John W. Hall Elected to Presidency of Potash Firm

WASHINGTON—John W. Hall has been named president of the Potash Company of America, it was announced by the board of directors last week.

Mr. Hall succeeds F. O. Davis who retired from the position of president for personal reasons. The board expressed sincere appreciation to Mr. Davis for his long years of loyal service to the company in many capacities and extended its regrets that he felt compelled to submit his resignation at this time. Mr. Davis will remain available to the company on a consultative basis.

The new president, Mr. Hall, has been with the Potash Company of America for 10 years, starting as Northern regional sales manager. Later he was appointed general sales manager and for the past four years he has been vice president in charge of sales, a member of the board of directors, and a member of the executive committee of the board. His new assignment will take him to the company's central headquarters in Denver, Colo.

The Potash Company of America is one of the nation's major potash producers with offices in Denver,

CROPLIFE, Dec. 28, 1959—21
Washington, Atlanta, Peoria, Ill., and mines in Carlsbad, N.M., and Saskatchewan, Canada.

Mr. Hall is a director of the American Potash Institute and a director and executive committee member of the National Plant Food Institute.

AAI Convention To Be Held in Dallas

DALLAS, TEXAS—The ninth annual convention of the Agricultural Ammonia Institute will be held at the Statler Hotel here, Jan. 13-15.

Highlights of the meeting will include:

- Luncheon talk, Jim Hays, president emeritus of Michigan State University.
- "The AAI Story" by Jack F. Criswell, executive vice president, AAI, and Frank E. Jordan, AAI executive assistant.
- "The Ammonia Story for Texas," by Dr. Thomas Longnecker, director, High Plains Research Foundation, Plainview, Texas.
- "Credit and Financing," by H. A. Yeats, treasurer of Southwestern Rim and Wheel Co., Dallas.
- Two part sales clinic conducted by the Merrit Adams Training Institute.

Texas Ranchers Increase Battle Against Mesquite

SAN ANGELO, TEXAS—West Texas ranchers are steadily increasing their battle against mesquite, which is a woody range plant that competes for moisture and bars livestock from grass with its thorny limbs.

To aid ranchers more effectively, Texas A&M College has issued a bulletin titled "Control of Mesquite on Grazing Lands." Methods recommended include hand or power grubbing, oiling with kerosene and diesel fuel and basal application of 2,4,5-T, and soil application of monuron.

Mesquite has come in during the last 50 years due to overgrazing and dry weather. Records show that the plants existed mostly in draw and creek bottoms before that time. Now it is so dense in some pastures that ranch hands can hardly ride a horse through these areas. Such stands are very expensive to eradicate, either with chemicals or power grubbing.

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Economics, Weather, and Politics Provide Numerous 'Ifs' for 1960 Trade Prospects

CHALLENGES OF ALL kinds face the agricultural chemical industry in 1960. Predictions of just what might happen are both difficult and hazardous to make, and through the years we have seen situations change so that predicted direful events failed to come about, or anticipated prosperity turned downward surprisingly. Thus nobody wants to play the role of prophet.

However, some things appear pretty certain about 1960; both good and bad. One is that the farm income decline begun the latter part of '59 will continue into 1960 far enough that it may affect purchases of fertilizers and pesticides in the spring. Another always important factor, regardless of economics, is the weather which can dictate whether a farmer can get into his fields for early application of plant foods.

The pesticide trade faces a most ominous outlook with the public being constantly stirred up against the whole concept of pesticides, and the possibility of "cancer-causing chemicals" has become a strong fetish in the minds of thousands around the country. Regardless of how outlandish some of these ideas are, they appear to be very real and threatening to those convinced of their truthfulness.

Probably one of the most explosive factors in this business lies on the political side, with 1960 being an election year. There have already been accusations of politics in connection with the publicity-laden handling of the cranberry situation in November, and there are still overtones of political considerations involved in subsequent acts of the Department of Health, Education and Welfare.

When anyone in the position of Arthur S. Flemming, secretary of that department, can in effect ask lawmakers who of their number are in favor of cancer, he can expect replies that fit his purposes exactly. The entire pesticide industry may be in for more restrictions in 1960 and subsequent years. Not many, if any, congressmen are likely to go on record as voting for materials which many of their constituents believe will be threatening to health. It is a tough problem to overcome.

Much of the business success of both the pesticide and fertilizer industries will depend primarily upon the health of farm economics, however. That is basic.

With 1960 looming as an election year, it might be wise to speculate a little on the part government programs may play in the coming season. At this stage of the game, there is no assurance that any current presidential aspirant, declared or otherwise, will ever reach a point of putting his farm policy ideas into action. But it is of considerable interest and significance to note the stand taken by Nelson A. Rockefeller in his recent talks in the Midwest. As a contender for the Republican nomination, his embracing of the Benson program is important.

In fact, he went even further than has the present secretary of agriculture. Mr. Rockefeller advocated doubling of the conservation reserve program to include some 60 million acres removed from small and inefficient farms. People now living on these substandard acres might continue to reside there, but would probably be employed off the farm in urban plants.

Mr. Rockefeller may be biting off a considerable chunk when he talks about protective price supports based on cost of production. Can anyone, political or otherwise, find an accurate common denominator for determining what production costs will be for any crop?

This is an area where the fertilizer industry in particular might re-emphasize some facts

brought out months ago when Dr. Russell Coleman, executive vice president of the National Plant Food Institute, declared that the surplus situation is but an incident in the growth of the agricultural economy of the nation.

The continual growth and expansion of population in the U.S. as well as in the entire world is eloquent evidence of the truth of this position. Some day, although not in 1960, all these presently unused acres, plus additional millions of tons of plant food will be urgently needed to provide a crowded world with the food and fiber it must have to keep going.

In the meantime, we have to live with the situation. The Coleman observation that surpluses will before long be a thing of the past, and the Rockefeller proposal that only the better farmers, the most efficient operators should remain on farms, may still work well for the trade. These remaining farmers should be more cognizant of the usefulness of fertilizers and their economic value.

Also, as is pointed out elsewhere in this issue by Paul T. Truitt, executive vice president of the National Plant Food Institute, the educational program carried out by the institute during the past year or so should be a factor in better sales of fertilizers during the coming season.



IF FERTILIZER is such a bargain, why do farmers not buy more and more of it to make more profit for themselves? This is an important consideration as the industry studies its sales problems for 1960.

Here are a few reasons why farmers fail to use optimum quantities of fertilizer, according to William L. Turner of the North Carolina State College staff, who made these points in a recent address:

1. Problems in application of fertilizers. The put-it-on-yourself method of distribution has left it up to the farmer to do the job. The more recent method of commercial bulk spreading gets the job of fertilization more specialized as to meeting the fertility needs of crops and pastures (particularly when based upon soil test) and leaves the farmer free to concentrate on other farm operations. This also tends to reduce the quantity of fertilizer handling equipment needed by the individual farm operator.

2. Landlord-tenant relations. A high percentage of farms are tenant operated. These farms are often owned by heirs, women, or absentee owners. Inadequate fertilization is often caused by a lack of mutual understanding between owners and tenants as to the need of fertilizers, the division of costs between parties involved, and reimbursement of a departing tenant for unexhausted applications of fertilizer.

3. Risks. Risks in using fertilizer arise from uncertainty as to increases in yield and prices to be obtained. In deciding how much fertilizer to apply, many farmers think that a comfortable margin of safety is needed as an offset to the possibility of mistakes, unfavorable growing conditions, or declining prices between purchase of fertilizer and sale of the crop.

4. Save on expenses. Some farmers think they cannot afford to use fertilizer whenever farm prices are low or declining. They often follow a course that is disadvantageous to them because they can avoid some cash outlay by eliminating or curtailing use of fertilizers.

5. Lack of knowledge. Many farmers do not know the value and importance of using proper quantities of fertilizers. They do not realize the extent of plant food removals and the necessity for returning them to the soil.



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EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn. Tel. Franklin 4-5200. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by
THE MILLER PUBLISHING CO.
2501 Wayzata Blvd., Minneapolis, Minn.
(Address Mail to P. O. Box 67, Minneapolis 40, Minn.)



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MEETING

MEMOS



- Jan. 7-8—Mississippi Insect Control Conference, Sixth Annual Meeting, State College, Miss.
- Feb. 9-11—Southern Regional Liquid Fertilizer Conference, Rock Eagle 4-H Club Center, Eatonton, Ga.
- Jan. 21—Fertilizer Sales Promotion Workshop, Hotel Hershey, Hershey, Pa.

Meeting Memos listed above are being listed in this department this week for the first time.

- Jan. 5-6—Annual Texas Fertilizer Conference, College Station, Texas.
- Jan. 5-6—12th Annual Fertilizer Industry Representatives' Conference, Memorial Union, Iowa State University, Ames, Iowa.
- Jan. 6—Southwest Research and Education Committee meeting, Texas A&M College, College Station, Texas.
- Jan. 6-7—Wisconsin Pesticide Conference with Industry, Wisconsin Center Bldg., University of Wisconsin, Madison, Wis.
- Jan. 6-8—14th Annual Meeting, Northeastern Weed Control Conference, Hotel New Yorker, New York City.
- Jan. 7-8—Fourth Georgia Structural Pest Control Operators' Short Course, University of Georgia, Athens.
- Jan. 7-8—Colorado Fertilizer Conference, Fort Collins, Colo.
- Jan. 7-8—Sixth Annual Mississippi Insect Control Conference, in conjunction with annual meeting of Mississippi Entomological Assn., Mississippi State University, State College, Miss.
- Jan. 11-14—Kansas Fertilizer Dealer Meetings: Jan. 11, Hiawatha; Jan. 12, Lawrence; Jan. 13, Abilene, and Jan. 14, Belleville.
- Jan. 12-13—Thirteenth Annual Meet-

ing of the Ohio Pesticide Institute, Lincoln Lodge, Columbus, Ohio.

- Jan. 12-13—Nebraska Fertilizer Institute annual convention, Pershing Auditorium, Lincoln, Neb.
- Jan. 13—Georgia Plant Food Educational Society, University of Georgia, Athens, Ga.
- Jan. 13—New Mexico Agricultural Chemical Conference, third annual meeting, Milton Hall, New Mexico State University, University Park, N.M., Dr. J. Gordon Watts, chairman.
- Jan. 13-14—Pesticide School, North Carolina State College, Raleigh, N.C.

- Jan. 13-15—Ninth Annual Convention, Agricultural Ammonia Institute, Statler Hilton Hotel, Dallas, Texas.
- Jan. 13-15—Virginia Polytechnic Institute Agronomy Schools: Jan. 13, Culpeper; Jan. 14, Tappahannock; Jan. 15, Gloucester.
- Jan. 14-15—Beltwide Cotton Production-Mechanization Conference, Peabody Hotel, Memphis, Tenn.
- Jan. 14-15—Annual meeting of Georgia Plant Food Educational Society in conjunction with Georgia Section, American Society of Agronomy and Soil Science Society of America, University of Georgia, Athens.

- Jan. 14-16—10th Annual Convention of the Agricultural Aircraft Assn., El Mirador Hotel, Palm Springs, Cal.

- Jan. 19-21—Twelfth Annual California Weed Conference, Sacramento, Cal.
- Jan. 20-21—Third Annual Arizona Fertilizer Conference, University of Arizona campus, Tucson, Ariz.
- Jan. 20-21—North West Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore., C. O. Barnard, executive secretary.

- Jan. 20-22—Thirteenth Annual Southern Weed Conference, Buena Vista Hotel, Biloxi, Miss.
- Jan. 21—Northeast Region, National Plant Food Institute fertilizer sales promotion workshop, Hotel Hershey, Hershey, Pa.

- Jan. 25—Wisconsin Lime and Fertilizer Day, University of Wisconsin campus, Madison, Wis.
- Jan. 25-26—Second Annual Agricultural Pesticide Conference, Purdue University, Lafayette, Ind.
- Jan. 25-27—Cotton States Branch, Entomological Society of America, DeSoto Hotel, Savannah, Ga.

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CALENDAR FOR 1959-60

DECEMBER							JANUARY							FEBRUARY							MARCH								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	7	8	9	10	11	12	13			
6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13	14	15	16	17	18	19			
13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20	13	14	15	16	17	18			
20	21	22	23	24	25	26	27	17	18	19	20	21	22	23	21	22	23	24	25	26	27	20	21	22	23	24	25		
27	28	29	30	31			24	25	26	27	28	29	30	28	29	31	27	28	29	30	31								
APRIL							MAY							JUNE							JULY								
3	4	5	6	7	8	9	1	2	3	4	5	6	7	5	6	7	8	9	10	11	1	2	3	4	5	6	7		
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
17	18	19	20	21	22	23	22	23	24	25	26	27	28	20	21	22	23	24	25	26	27	24	25	26	27	28	29	30	
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30	31										
AUGUST							SEPTEMBER							OCTOBER							NOVEMBER								
1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
8	9	10	11	12	13	14	4	5	6	7	8	9	10	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
15	16	17	18	19	20	21	11	12	13	14	15	16	17	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
22	23	24	25	26	27	28	25	26	27	28	29	30	31	25	26	27	28	29	30	31									

Jan. 26-27—South Dakota Fertilizer Dealers Short Course, South Dakota State College, Brookings, S.D.

Jan. 27-28—Annual Illinois Custom Spray Operators' Training School, University of Illinois, Urbana, Ill.

Jan. 27-29—Symposium on Chemistry of Phosphate-Soil Reactions, Muscle Shoals, Ala.

Jan. 28-29—Annual meeting of the Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver, Colo.

Feb. 2-4—Pest Control Operators' School, North Carolina State College, Raleigh, N.C.

Feb. 3-4—Illinois annual fertilizer industry conference, University of Illinois, Urbana.

Feb. 4—Executive Committee Meeting, National Safety Council, Fertilizer Safety Section, New Florida Hotel, Lakeland, Fla.

Feb. 8-9—Southwestern Branch, Entomological Society of America, Hilton Hotel, El Paso, Texas.

Feb. 8-9—Twenty-Second Annual Meeting, National Cotton Council of America, Statler-Hilton Hotel, Dallas, Texas.

Feb. 9-11—Seventh Annual Agricultural Chemicals Conference, Texas Technological College, Lubbock, Texas.

Feb. 11-12—Midwest Agronomists-Fertilizer Industry meeting, Edgewater Beach Hotel, Chicago, Ill.

Feb. 17-18, 23-25—Indiana Ammonia Service School; Feb. 17, Lafayette; Feb. 18, Bedford; Feb. 23, Valparaiso; Feb. 24, Ft. Wayne; Feb. 25, Muncie.

Feb. 17-18—Pest Control Conference, Alabama Polytechnic Institute campus, Auburn, Ala. Sponsored by A.P.I. and the Alabama Association for Control of Economic Pests.

Feb. 22-25—Weed Society of America meeting, in conjunction with Western Weed Conference, Cosmopolitan Hotel, Denver, Colo.

March 22-23—Western Agricultural Chemicals Assn., spring meeting, Miramar Hotel, Santa Barbara, Cal.

March 23-25—North Central Branch, Entomological Society of America, Schroeder Hotel, Milwaukee, Wis.

March 30-31—Twenty-fourth annual meeting, Georgia Entomological

CROPLIFE, Dec. 28, 1959—23

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Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

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Society, New Science Center, University of Georgia, Athens, Ga.

June 12-15—National Plant Food Institute annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 27-29—Pacific Branch, Entomological Society of America, Davenport Hotel, Spokane, Wash.

July 13-15—Eleventh Annual Fertilizer Conference of the Pacific Northwest, Hotel Utah, Salt Lake City; B. R. Bertramson, State College of Washington, Pullman, Wash., chairman.

July 27-29—Great Plains Agricultural Council, 1960 meeting, Laramie, Wyo.

Maleic Anhydride Plant Started in California

SAN FRANCISCO—Construction of a multi-million dollar plant for the manufacture of the chemical maleic anhydride has been started at the Richmond refinery of Standard Oil Co. of California. The 20 million pound-per-year installation is being built by Badger Manufacturing Co. of Cambridge, Mass., for Oronite Chemical Co., a Standard subsidiary. Completion is scheduled for mid-1960.

Maleic anhydride is a chemical intermediate employed in production of agricultural chemicals and industrial chemicals. The new plant is the first such installation in the West.

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CROPLIFE is the only *complete sales medium* directed to the agricultural chemical industry. It is a newspaper appealing to all segments of the industry. One of its editorial functions is to knit more closely together all those industry elements—manufacturers, agents, retailers, the educational echelon and farm advisor groups. It does this by:

- Keeping all segments informed of all industry news.
- Providing feature material designed to help manufacturers and mixers to do a better job, to help dealers sell and to help farm advisors and educational people make sound recommendations.
- Keeping all industry alert to current and proposed government action.
- Providing a channel through which news and advertising can reach all segments of the industry.

This new approach to business journalism for the agricultural chemical industry is being made by a company with 87 years of experience in news-gathering and publishing and one which has built an unchallenged reputation for reliability and service. Advertising of your products and services in Croplife will mean *richer sales fields* for you!

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